

Bible Mathematics

(Learning Mathematics from the Bible)

Utmost Ministries

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Mathematics Curriculum

Many people find it difficult to believe, on the face of it, that teaching mathematics from the Bible is feasible, however, when you look at simple passages in the Bible it becomes apparent that it would be a sin not to do so. For example, examine the following treatise:

Numbers 26:56 *According to the lot shall the possession thereof be **divided** between many and few.*

This **division** by lot seems to have respect only to the quarter, or situation, which each tribe was to possess, and not to the quantity or extent of land, which was to be proportioned to the numbers of each tribe, according to the register now formed. Thus, for instance, it was determined by lot which of the twelve tribes was to inherit in the south, which in the north, etc.: then, in that quarter where the lot fell, a larger or smaller portion of land was assigned them, according to the goodness of the soil, and in proportion as they were more or less numerous. Thus the decreasing of any tribe in the wilderness, proved the decrease of their future political importance and affluence in all succeeding ages. This **equal division** of property was, under God, the great bulwark and strength of the Hebrew commonwealth. *According to the most exact calculations, Canaan contained 14,976,000 acres; which, divided among 600,000 men, will allow of more than 21 acres and a half to each, with a remainder of 1,976,000 acres for the princes of tribes, Levitical cities, etc.:* so that there was an ample provision to enable each person, with all the advantages of that fertile country and fine climate, to live, if not in affluent, yet in very comfortable circumstances. *Canaan lies between latitude 31 degrees and 33 degrees 30' N., and longitude 35 degrees and 37 degrees E.; its length, from the city of Dan to Beersheba, is about 200 miles; and its breadth, from the shores of the Mediterranean to the eastern borders, about 90.* The Canaanites, the descendants of Canaan, son of Ham, and the original inhabitants of the land, were **divided into seven principal nations**, — the Amorites, Hittites, Jebusites, Girgashites, Canaanites, Perizzites, and Hivites, and formed themselves into almost as many kingdoms as they had cities.

Learning mathematics from the Bible has redeeming value beyond the simple yet intense head knowledge you get from general math textbooks. In the book of Leviticus, we learn a profound fact that there is “nothing new under the Sun,” and hopefully you will begin to discover in this material that all mathematical knowledge had its foundation from the Scriptures.

Measurements

1. Exodus 26:2 The length of one curtain shall be eight and twenty cubits, and the breadth of one curtain four cubits: and every one of the curtains shall have one measure.

Application: In geometry, measurement is dealt with by addressing two or more dimensions. The curtain God describes to Moses has a “*length*” and a “*breadth*”. In geometry, the length would become part of a formula and

be labeled the “x” axis. In geometric vernacular, the breadth would be called the “*width*” and would be labeled the “y” axis.

In math, a measurement expressed as a formula is called an expression. Note that God pointed out to Moses that the curtains, the object, have one measurement. The expression for each curtain is as follows:

Expression: The length by (or times) the width is equal to one measure (or the material in the whole curtain).

Formula: length times width equals total
or: $X \text{ times } Y = ?$

A measurement of anything of substance must include two parts. There must be a number and a unit of measure. With out the number the unit is worthless and without the unit the number is worthless in measuring. The unit of measure God uses is the *cubit*. A cubit is a measure of distance (the forearm), roughly 18 in (.5m). There are several cubits used in the OT, the cubit of a man or common cubit (Deut. 3:11), the legal cubit or cubit of the sanctuary (Ezek. 40:5) plus others. In this case, God expected Moses to use his own forearm.* The custom was for the ruler to establish the measure, thereby establishing the authority under which people abided at a given time and place.

For all practical purposes, we can say today that the standard cubit is eighteen inches (or one half of a *yard*). Since God’s curtains had two dimensions (length times width). When a measurement is expressed as *length times width*, the resulting measurement is expressed in *square yards* (or inches or whatever the unit may be). This means that two cubits equal one yard in today’s vernacular. Then it follows that two cubits (1 yard) length by 2 cubits (1 yard) width is equal to *one square yard*. So, let’s look at our expression again using these units:

Expression: The length of 28 cubits divided by 2 equals 14 yards, and the width of 4 cubits divided by 2 equals 2 yards, so the length times the width is equal to a number in square yards.

Formula: 14 yards length times 2 yards width equals total square yards.

or: $X \text{ yards times } Y \text{ yards} = ? \text{ square yards (of material)}$

that is: $14 \text{ yards} \times 2 \text{ yards} = 28 \text{ square yards (of material)}$

***From Webster’s 1828 Dictionary:**

CUBIT, n. [L., the elbow; signifying a turn or corner; Gr.]

1. In anatomy, the forearm; the ulna, and bone of the arm from the elbow to the wrist.
2. In mensuration, the length of a man’s arm from the elbow to the extremity of the middle finger. The cubit among the ancients was of a different length among different nations. Dr. Arbuthnot states the Roman cubit at seventeen inches and four-tenths; the cubit of the scriptures at a little less than 22 inches; and the English cubit at 18 inches.

2. Exodus 26:8 The length of one curtain shall be thirty cubits, and the breadth of one curtain four cubits: and the eleven curtains shall be all of one measure.

Application: These curtains shall be thirty cubits (or 15 yards) in length, and four cubits (or 2 yards) in breadth (width).

Notice that we have already begun to translate the vernacular of Moses' time to that of our time. Two *cubits* is now a *yard*; a *breadth* is now a *width*. As long as we do not change the original meaning, there is no harm in doing this. Let's look at the expression for this measurement:

Expression: The length of 30 cubits divided by 2 equals 15 yards, and the width of 4 cubits divided by 2 equals 2 yards, so the length times the width is equal to a number in square yards.

Formula: 15 yards length times 2 yards width equals total square yards.

or: $X \text{ yards} \times Y \text{ yards} = ? \text{ square yards (of material)}$

that is: $15 \text{ yards} \times 2 \text{ yards} = 30 \text{ square yards (of material)}$

Can you think of a reason why God told Moses to make the set of curtains in exercise "1." a shorter length than those in exercise "2."?

What is the difference in their length? How did you arrive at the answer?

3. Leviticus 19:35 Ye shall do no unrighteousness in judgment, in meteyard, in weight, or in measure.

Application: God points out that it is important to Him that we are always honest in the way we do measurements, whether it be the measure of someone's worth, attitude, or stature or if it be in actual linear, mass, or volume measurements. He uses the term "*meteyard*"* (or yardstick) to indicate the way of measuring the **length** of something, the term *weight* to infer the idea of measuring **mass**, and the term *measure* to indicate the measure of something by **volume**.

God is very thorough and scientific about the way He places these values into His creation and expects them to be adhered to. We are to be precise with measurements. One place we see that God is precise, right before He is generous, is in Luke 6:38, where He says, "Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give into your bosom. For with the same measure that ye mete** withal it shall be measured to you again." In this passage, "*pressed down*" refers to how a basket of wheat sold in the market place is gently pressed down with the palm of the hand, while more wheat is added in, and the expression "*shaken together*" means to shake thoroughly, of a measure filled by shaking its contents together so there is no space between the grains. This makes sure that there is no mistake in the measurement (a "just measure").

***From Webster's 1828 Dictionary:**

ME'TEYARD, n. A yard, staff or rod, used as a measure. [We now use yard or yardstick.]

****METE**, v.t. [L. metior; Heb. to measure.] To measure; to ascertain quantity, dimensions or capacity by any rule or standard. [Obsolescent.]

****METE**, n. Measure; limit; boundary; used chiefly in the plural, in the phrase, metes and bounds.

Note: The words “dimension” and “meter” both have their root in the term “mete.”

Why is it important for us to be careful not to be unjust in our measurements?

4. Numbers 35:5 And ye shall measure from without the city on the east side two thousand cubits, and on the south side two thousand cubits, and on the west side two thousand cubits, and on the north side two thousand cubits; and the city shall be in the midst: this shall be to them the suburbs of the cities.

Application: Most people believe that all the ideas and information for laying out cities and neighborhoods were devised from the creative minds of men and women, whether it was in modern times or in the days of earlier civilizations, such as the Greeks or the Romans. However, here we have evidence of the reality of Ecclesiastes 1:9, where it is said, “The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is no new thing under the sun.” We can be assured that all mankind’s ideas were at one time part of God’s great wisdom.

On this idea, we see, in Numbers 35:5, that the idea of having housing on the outskirts of the city, with neighborhoods in which families could dwell was originally God’s concept. In fact, in proportion to the city, God gave the exact measurement that the suburbs were to extend out from the walls of this city. Notice two things about God’s plan for these suburbs. 1) the layout was uniform with the walls of the city, and extended out exactly North, South, East, and West, in a perpendicular line from them, and 2) the distance that was to be measured off was an exact amount in each direction, which was the same for each respective suburb.

The word “measure,” in this passage, is the Greek word “madad” (pronounced maw-dad’), which is defined as “a primitive root: properly, to stretch; by implication, to measure (as if by stretching a line); figuratively, to be extended:—measure, mete, stretch self.” Not only was this measurement to be an extension of the actual city from whose wall it was measured out, but there is another interesting idea here. This word “measure” includes the idea of using the body to measure, where it

is said to “stretch self.” This is not something unheard of, in that the Athenians adopted this idea of measuring an “ell,” which was measured from the middle of the chest to the middle finger tip of the hand. Two of these lengths were known to be a “fathom.” 100 fathoms were called a “furlong” (the official distance around the Olympic track). Eight furlongs are equal to one mile. Now the Olympic track was actually measured by a man, having the same reach as the Ruler, stretching out his arms 100 times.

Note: The term “ruler,” for our measuring stick, came from the Ruler setting the measure at any given time. Each Ruler had his own unit of measure.

The suburbs stretched out 2000 cubits from the city on four sides. How many yards from the city did the suburbs reach? Write out an expression to show how you arrived at your answer.

What factors would you have to know to accurately determine how many square yards that the suburbs covered out from the city walls?

If the suburb on the eastern wall of the city formed a perfect square with that wall, how long would the city wall be?

5. Deuteronomy 25:15 But thou shalt have a perfect and just weight, a perfect and just measure shalt thou have: that thy days may be lengthened in the land which the LORD thy God giveth thee.

Application: Here again God gives us the idea that He expects weights and measures to be “perfect and just.” The reference to “perfect” is a reference to a measure that is “whole” or “complete.” In mathematics, this would be a number or measurement that might involve fractions, percentages, or even decimal points to express. Would it be perfect to express the number 3.142 as three? It might seem that this would be okay, however, when multiplying this number by 5 you come up with 15.71 and not 15. To be “perfect,” as God is perfect, we are required to be accurate in our mathematics.

The reference to “just” is a reference to a measure that is “right” in accordance with those who govern the standard for weights and measures. In the reign of David, the just measure was what David established and applied to every man and woman in his kingdom, without exception. But, in more modern times, a standard was established based on something in common. This was because countries began to trade with each other worldwide. At one time, a just weight and measure came to be carefully measured and agreed upon metals that could be placed on a balance scale against the weight of bought goods and then there was a metal bar or ruler of a length that could establish a

common measure for all those in trade. Governments agreed to the calibration of scales each year to assure the justness of weights in trade. As time has passed, these governments looked to more scientifically accurate means of measuring length by the use of lasers, allowing smaller units of measure than ever.

At His dying breath on the cross, Jesus expressed “It is finished.” The term “finished” here is significant to math and this lesson. How is this significant to math and what was He expressing, by comparison to His finished work of dying on the cross for our sin?

What point about money was Jesus teaching, when He told His disciples, in Luke 20:25, “...Render therefore unto Caesar the things which be Caesar’s, and unto God the things which be God’s”?

6. 2 Chronicles 3:3 Now these are the things wherein Solomon was instructed for the building of the house of God. The length by cubits after the first measure was threescore cubits, and the breadth twenty cubits.

Application: It was interesting that God, Who is Spiritual operates with us in the natural also, as if to say He has just as great an interest in this area of our life as with our spiritual life. In this same light, Solomon, having asked God for Wisdom, rather than wealth, so pleased God that He gave Him knowledge of things without formal schooling.

Here we see that God instruct Solomon about the dimensions of the Temple that he had the privilege to build. God tells him the dimensions in terms such as “threescore,” which we usually see used in relationship with time, rather than distance. A look at this reference reveals how much more in command of language and understanding God is than we. To understand the significance of the reference to “threescore,”* we must first examine the term “score.” Before the knowledge of writing, our ancestors numbered and kept account of numbers by cutting notches on a stick or tally and making one notch the representative of twenty. Threescore then is, of course, the number 60. Now we can look at this expression:

Expression: The length of 60 cubits divided by 2 equals 30 yards, and the width of 20 cubits divided by 2 equals 10 yards, so the Temple was to be 30 yards deep and 10 yards wide.

Formula: 30 yards long times 10 yards wide equals total square yards.

or: $X \text{ yards} \times Y \text{ yards} = ? \text{ square yards}$

that is: $30 \text{ yards} \times 10 \text{ yards} = 300 \text{ square yards}$

***From Webster’s 1828 Dictionary:**

THREE'SCORE, a. [three and score.] Thrice twenty; sixty; as threescore years.

No one goes to buy a home and expresses the home in square yards. If there are 3 feet in a yard, how many square feet is the Temple that Solomon built? Show a formula for the expression you use to figure out this problem.

Compare the size of Solomon's Temple to a church or another building of the same dimensions in your community.

7. Job 11:9 The measure thereof is longer than the earth, and broader than the sea.

Application: This application of a measurement is making references to numbers that are unknown, which relate directly to math. Unknown numbers are found in math today and are balanced in an equation with two or more known numbers to figure out the unknown number. In this case, we are not supposed to figure out the unknown factor, because that factor is balanced in an equation of two unknown factors: 1) "longer than the earth," and 2) "broader than the sea." Is there any way to determine these figures or measurements? The earth is not actually long; it is round or oval shaped. The sea is made up of multiple borders, which makes it impossible to establish how broad it is. These factors allow us to know, mathematically, that the answer to this passage involves both an unknown and an undetectable value, which is God His self.

What factors must be available to determine the length and the width of a subject?

Why did God pick these factors to describe His self?

8. Job 28:25 To make the weight for the winds; and he weigheth the waters by measure.

Application: God uses the first term *weight*, which means a weight that is numerically estimated. This is speaking of a full and measured weight. However, He now is speaking of the weighing of a measured amount of water (a liquid). This brings us to the study of measuring and weighing *volume*. Yet another factor is brought into the verse here and that is wind, which speaks of *velocity*. The verse begins with the phrase "to make" which involves in its definition the actions of producing and then observing. This sounds both scientific, in approach and method and certainly involves mathematics.

In this verse the term "*weigheth*" in Hebrew is "takan" (pronounced taw-kan') which means to mete out, to weigh out, to make equal, to test, or to prove, and its other indications is to be made even or right, be adjusted to the standard. Just like the measurement of length and width, we have standards of weights also. The Bible is a standard for all

knowledge and wisdom that can be depended upon. In the same way, the standards for weights and volume can be depended on.

What are the standard liquid measures?

In what functions of our daily life are liquid measures used?

What is velocity? What does it measure? Learn how it is measured?

9. Isaiah 40:12 Who hath measured the waters in the hollow of his hand, and meted out heaven with the span, and comprehended the dust of the earth in a measure, and weighed the mountains in scales, and the hills in a balance?

Application: Here we are told about the types of measurements God set up for us to make on the elements.

Expression: We measure liquid in a cup (like in the hand). We say, the recipe requires one and a half cups of milk. This is known as volume.

Expression: We determine space or distances by measurements determined originally by the lengths of the body, such as the “span” of a hand. The Egyptians would measure the length of the Ruler’s hand, from tip of the thumb to tip of the small finger and call it a “large span.” They called the measure from the tip of the thumb to the tip of the pointer a “little span.” The width of a span was thought to be three palm widths wide.

Expression: We use scales and balances to determine the weight of matter or mass. Note how this verse indicates that by observing the measure of dirt, we can have a way of weighing a mountain. This requires the skills of weighing and observation.

10. Ezekiel 4:11 Thou shalt drink also water by measure, the sixth part of an hin: from time to time shalt thou drink.

Application: Here we see that God enters into the use of fractions. While giving Ezekiel instructions about a diet that is for a prophecy for Israel, God tell him exactly how much water he is to drink. There is a whole measure from which the fractional number is to be derived, which is referred to by the measure called a “*hin*.” Another reference is made to the frequency whereby he must drink this portion of water, which God describes in terms of “from time to time.”

First of all, lets examine the frequency. The reference God makes for drinking “from time to time” is the Hebrew word “‘eth ayth” which means “seasonal”. This is translated to mean the seasons of the day or else “now, at noon, and in the evening.” Another way to look at this

phrase is as a measure of time that you go before you eat another meal (breakfast, lunch, and dinner). This is a specific measurement of time, however it is according to ones schedule.

Second we can look at the measure of a “hin.”* This is an amount of liquid equal to about 5 quarts. Out of interest, though not brought into the verse, a hin is also a fraction of another liquid measure called an “ephah.” An ephah is literally expressed as 7 gallons and 4 pints (or approximately 7 and one half gallons).

***From Webster’s 1828 Dictionary:**

HIN, n. [Heb.] A Hebrew measure of capacity containing the sixth part of an ephah, or about five quarts English measure.

It would be good here to look at an expression for the amount of what God told Ezekiel to drink at a time.

Expression: The whole amount that was expressed was a hin, and God told Ezekiel to drink one sixth (a fraction) of that whole amount each period.

Formula: 5 quarts (hin) divided by six is the fractional amount for Ezekiel to drink. Note that when a fractional amount is taken from a quart the unit of measure for that fractional amount will no longer be in quarts but in pints.

or: X quarts divided by $Y = ?$ pints of liquid
that is: $5 \text{ quarts} / 6 = ?$

What is the next smaller unit than a gallon? How many pints in a quart? What is the next smaller unit than a pint?

Determine how many pints are in an ephah or epha. Show this in an expression.

11. Ezekiel 4:16 Moreover he said unto me, Son of man, behold, I will break the staff of bread in Jerusalem: and they shall eat bread by weight, and with care; and they shall drink water by measure, and with astonishment:

Application: In this verse we see that God tells Ezekiel about a method He has for making equal shares of bread and water among the people. The indication here of breaking the bread from a staff shows it is not carefully cut for them, but that they must be careful in how they divide it among themselves. Then we see how this use of the word measure for the reference to giving them water means to divide very evenly. Dividing the water evenly requires the knowledge of division. Because we are speaking about dividing liquids, we must use the method of measurement. Note that the bread is weighed, but the water is carefully measured.

How is water that comes into your home measured?

What measurement tools are used to measure liquid for a recipe?

12. Ezekiel 45:11 The ephah and the bath shall be of one measure, that the bath may contain the tenth part of an homer, and the ephah the tenth part of an homer: the measure thereof shall be after the homer.

Application: Is it made clear here to Ezekiel that there was a measure for liquid (the bath), which was equivalent to a measure for grain (the ephah or epha). It says in Isaiah 5:10 that “ten acres of vineyard shall yield one bath.” This was not greatly productive. The ephah was pressed down solid to be like the liquid bath.

***From Webster’s 1828 Dictionary:**

E'PHA, n. [Heb. properly a baking.] A Hebrew measure of three pecks and three pints, or according to others, of **seven gallons and four pints**, or about 15 solid inches.

B'ATH, n. A Hebrew measure containing the tenth of a homer, or **seven gallons and four pints**, as a measure for liquids; and three pecks and three pints, as a dry measure.

From ChristianAnswers.net:

Ephah, a word of Egyptian origin, meaning measure; a grain measure containing "three seahs or ten omers," and **equivalent to the bath for liquids**.

A bath was said to be 7 gallons and four pints. If the bath was one tenth of a homer, then how much was a homer? Write an expression and formula by which this answer can be determined.

13. Zechariah 2:2 Then said I, Whither goest thou? And he said unto me, To measure Jerusalem, to see what is the breadth thereof, and what is the length thereof.

Application: The word *what* used before both “the breadth” and “the length” means how long. Therefore, God has sent Zechariah to measure how long is the width of Jerusalem and how long is the length of Jerusalem. But, as usual, God had another purpose behind these measuring units. The unit of a measure is not always width and length. In these usages, the word used for width referred to how true, right, and correct Jerusalem was, and the word used for length referred to how enduring it was. God was measuring the city not to find out how big it was, but to determine how ready it was for the Birth of His Son and the purpose it would serve throughout the duration of history.

So the words “what” that preceded each unit of measure was used as to mean how long, that is “How long will Jerusalem be true, right, and just?” and “How long will Jerusalem endure?” This was a different kind of measure and a much different unit of measurement. These measurements involved both time and condition.

Ezekiel 48:30-35 tells us that the length of the four walls surrounding Jerusalem was 4,500 measures each. If a measure is equal to a yard, how many feet long was each wall? Write an expression with a formula to show how you figure the answer.

How long was the wall completely around Jerusalem? What geometric shape did the walls around Jerusalem form?

14. Matthew 7:2 For with what judgment ye judge, ye shall be judged: and with what measure ye mete, it shall be measured to you again.

Application: The word *measure*, in this verse, is the Greek word “metron” (pronounced met’-ron), which means a measure (“meter”), literally or figuratively, and by implication is a limited portion (degree of measure). It is interesting that this word “meter” is used in the metric system for the metric yard. The meter is 39.37 inches as opposed to the yard, which is 36 inches in length. This word *measure* refers to, firstly, an instrument for measuring something. It can be a vessel for receiving and determining the quantity of things, whether dry or liquid. It can be a graduated staff for measuring, a measuring rod or stick. It can be proverbially, such as the rule or standard of judgment or a standard by which we live. Secondly, this word *measure* refers to a determined extent, a portion measured off, a measure or limit, that is, the required measure, the due, fit, or measure of a thing.

Since the word *mete* means to put something up against the measure you establish as your standard, this passage tells us that the matter is about which standard of measure we choose to use when and if we do this comparison. And it goes on to let us know that this same exact measure will be what we are measured against. Would it not be important that we get the measure right or to not measure at all?

Which is more money, the net of our paycheck or the gross? Which should we measure our tithe against? By which of these choices will God measure a greater blessing unto us?

Which was a greater measure of giving to God, the widower’s mite or the offering of the publican? Why?

15. 2 Corinthians 10:13 But we will not boast of things without our measure, but according to the measure of the rule which God hath distributed to us, a measure to reach even unto you.

Application: What we have here in this verse is a demonstration of how some things are without measure, or at least cannot be measured, and how other things can be measured. Those things that cannot be measured (air, for instance cannot be weighed or measured in the common sense) are no less real than those things that can be measured. Science is very wrapped up in mathematics. Often, scientists assume that things that cannot be measured by the natural and mathematical means of computation do not exist. This is comparable to the use of what is called a negative particle in the language. It is interesting the term “negative particle” exist both in mathematics and science as well as in the language of the Bible. In science and mathematics the negative particle is somewhat of an enigma, while in the language of the Bible the negative particle is a point in which one is willingly negative or against something. In this verse, the Apostle Paul explains in a negative particle that the measure that they use has no value and is useless (cannot be used as a standard) next to the measure or standard that Jesus establishes for him. This is in the same way that the Ruler established the measure by which measures were judged and an individual man could not use his own spans or lengths to establish the weight or measure of a thing. As a matter of fact, there are things that are real in our life that have no measure at all.

Name as many things as you can that cannot be measured, yet you know or believe they exist.

What means do we use to measure the distance of space between planets?

16. Revelation 6:6 And I heard a voice in the midst of the four beasts say, A measure of wheat for a penny, and three measures of barley for a penny; and see thou hurt not the oil and the wine.

Application: Mathematics measures and weights supports the economics of the day in accordance with the standards of measure that we uphold or support. Throughout time, economics have changed steadily. In the days of the Bible (time of the New Testament), a man could buy one days worth of dry wheat and barley to eat for just a denarii (a penny). However, there was an earlier time during the Old Testament, that the denarii was valued around the equivalent of 4 cents. What happened to change the value of the denarii? This is the uncertain mathematics of economics.

Expression: The denarii decreased in value from the Old Testament to the New Testament. Its value went from 4 cents to 1 cent. This drop, though very slow, was a percentage of change in the value of the money. We want to find the percentage it changed. To find the percentage of loss in value the denarii had over this time period, we must determine how many times the smaller amount will divide into the larger amount.

Formula: 4 cents (the larger number at which the denarii was once valued) divided by 1 cent (the smaller number at which the denarii was valued) gives the number to multiply by 100%.

or: $X \text{ cents} \div Y \text{ cent} = Z \text{ cents}$. Then, $Z \text{ cents} \times 100\%$ = the percentage of change

that is: $4 \text{ cents} / 1 \text{ cent} = 4 \text{ cents}$. Then, $4 \text{ cents} \times 100\% = 400\%$ drop in value

Economics is basically the totality of the status of a society of people during a given age. Economics involves the mathematics of goods and services, in wages for labor, of housing and transportation, and the value of money and what it will buy. If it costs more money to buy materials to build a home at a later time in history, then the cost of the house will be more, and the materials will be the same. However, when the builder cannot sell houses because they must sell for a higher price, then something has to be sacrificed so he can remain in business. The decision is made to build smaller houses, so that the price does not have to go up and the materials do not have to become inferior in quality. Just like the balloon that sits in the house a day or two after the birthday party, the house that is smaller for the same price is said to be the result of “deflation.” The rise in the cost of goods coincides with a lowering of the value of the dollar. This is also called deflation.

What is deflation? It is defined as “a persistent decrease in the level of consumer prices or a persistent increase in the purchasing power of money because of a reduction in available currency and credit.” You might wonder who controls the purchasing power of money by reducing the available currency and credit. To answer this question, find out who gives banks the power to lend money and extend credit to businesses.

Conversions...

Bible	American/British	Metric
Weight		
talent	75 pounds	34 kilograms
mina	1 1/4 pounds	0.6 kilogram
shekel (2 bekas)	2/5 ounce	11.5 grams
pim (2/3 shekel)	1/3 ounce	7.6 grams
bekah (10 gerah)	1/5 ounce	5.5 grams
gerah	1/50 ounce	0.6 gram
Dry Capacity		
cor (homer) (10 ephahs)	6 bushels	220 liters
lethek (5 ephahs)	3 bushels	110 liters
ephah (10 omers)	3/5 bushel	22 liters
seah (1/3 ephah)	7 quarts	7.3 liters
omer (1/10 ephah)	2 quarts	2 liters
cab (1/18 ephah)	1 quart	1 liter
Liquid Capacity		
bath (1 ephah)	6 gallons	22 liters
hin (1/6 bath)	4 quarts	4 liters
log (1/72 bath)	1/3 quart	0.3 liter
Length		
cubit	18 inches	0.5 meter
span	9 inches	23 centimeters
handbreath	3 inches	8 centimeters

Note: These conversions of weights and measures are based upon the best, conservative information available from ancient sources. It is not possible to be precise and some ancient measures definitely vary.

Time and Space

Only since Einstein's theory of Relativity has man realized that the universe is a triune space-time-matter continuum. Space-Time and matter had to come into existence together. Yet this is exactly what Genesis 1:1 claims: "*In the beginning (TIME) God created the heavens (SPACE) and the earth (MATTER).*"

Time

1. Genesis 4:3 And in process of time it came to pass, that Cain brought of the fruit of the ground an offering unto the LORD.

Application: In this verse the word *process* indicates *the "end of"* and the word *time* here refers the part of the day from "*sunset to sunset.*" The Hebrew day was from 6 pm until 6 pm the next night. We mathematically call this a 24-hour period, which in turns charts the length of a day for us even today. We can see by the verse that Cain brought his offering to the altar by the end of the day, just before 6 pm. This demonstrates the math of the Bible through knowledge of words in Scripture.

Buy the meaning of the word "time" in the above verse, what would the time be at the middle of the day?

2. Genesis 17:21 But my covenant will I establish with Isaac, which Sarah shall bear unto thee at this set time in the next year.

Application: In this verse, the word *time* refers to a time that has been appointed. This is speaking of a sacred time that is for a special divine purpose, as opposed to just an ordinary moment in time. This particular time could be a moment or a season and could be a sign.

How long does a season last? How long does a moment last?

3. Genesis 18:10 And he said, I will certainly return unto thee according to the time of life; and, lo, Sarah thy wife shall have a son. And Sarah heard it in the tent door, which was behind him.

Application: In this verse, the word *time* refers to the time of an event. God explains that Sarah will have a child (a special event). A related term emphasizes this sense of *time* is like dusk. Immediately following dusk is the dawn of a new creation, such as is the birth of Isaac.

When we look at time in relationship to events, we see how there is a proper time set down for every purpose, such as depicted in the following verses:

- Ecclesiastes 3:1 To every thing there is a season, and a time to every purpose under the heaven:
- Ecclesiastes 3:2 A time to be born, and a time to die; a time to plant, and a time to pluck up that which is planted;
- Ecclesiastes 3:3 A time to kill, and a time to heal; a time to break down, and a time to build up;
- Ecclesiastes 3:4 A time to weep, and a time to laugh; a time to mourn, and a time to dance;
- Ecclesiastes 3:5 A time to cast away stones, and a time to gather stones together; a time to embrace, and a time to refrain from embracing;
- Ecclesiastes 3:6 A time to get, and a time to lose; a time to keep, and a time to cast away;
- Ecclesiastes 3:7 A time to rend, and a time to sew; a time to keep silence, and a time to speak;
- Ecclesiastes 3:8 A time to love, and a time to hate; a time of war, and a time of peace.

4. Genesis 22:15 And the angel of the LORD called unto Abraham out of heaven the second time,

Application: The word *time* here refers to another or a second time after the one already established for an event.

5. Genesis 29:34 And she conceived again, and bare a son; and said, Now this time will my husband be joined unto me, because I have born him three sons: therefore was his name called Levi.

Application: In this verse, the word *time* means this time out of several times. The thing could have happened several times, one after another, like the beating of an anvil or the stroke of a clock. Leah had four sons, but with the third son, she felt that Jacob would join with her.

The event of each child born of Leah to Jacob happened like clockwork.

6. Genesis 39:5 And it came to pass from the time that he had made him overseer in his house, and over all that he had, that the LORD blessed the Egyptian's house for Joseph's sake; and the blessing of the LORD was upon all that he had in the house, and in the field.

Application: The word *time* in this verse refers to a specific point at which a time has begun. All time, as we know it, has a point of beginning, though the end point is not always clear or known. In this case, the beginning time is specifically known.

7. Genesis 39:11 And it came to pass about this time, that Joseph went into the house to do his business; and there was none of the men of the house there within.

Application: The word *time* in this verse refers to an average time that is reference to a specific time to determine about when of all time it refers. This is an average time, measured against a specific reference point.

Expression: It is possible to determine the average time in which an event occurs with a specific time of reference around which it occurred. Joseph went into the house around five or ten minutes before or after a specific time of day.

Formula: 5 am +/- 10 minutes = approximate time of day

8. Genesis 43:18 And the men were afraid, because they were brought into Joseph's house; and they said, Because of the money that was returned in our sacks at the first time are we brought in; that he may seek occasion against us, and fall upon us, and take us for bondmen, and our asses.

Application: The word *time* here refers to the first occurrence. This assumes that there will be more occurrences after this one. These occurrences can be plotted, referenced from the first occurrence to determine frequency or the lack of frequency of occurrences of the same event.

To do this, you can draw a point on a time line where the first event occurred and then, if this event happens again, you can draw another point on that line at that specific point in time that event occurred.

9. Exodus 13:14 And it shall be when thy son asketh thee in time to come, saying, What is this? that thou shalt say unto him, By strength of hand the LORD brought us out from Egypt, from the house of bondage:

Application: The word *time* in this verse indicates a point of time that occurs in the future (such as tomorrow or the next day). A future time can be a time established or it can be an unknown point in time.

10. Exodus 21:19 If he rise again, and walk abroad upon his staff, then shall he that smote him be quit: only he shall pay for the loss of his time, and shall cause him to be thoroughly healed.

Application: The word *time* here refers to the space in which one has been valuable or has labored in some way for another (for which wages are due).

Expression: If a man works for an employer who agrees to pay an agreed wage per hour, he might be paid after one day, one week, or two weeks. This is

usually worked out between the employer and the worker before any work commences.

Formula: Wages times hours worked equal amount earned.
or: \$10 an hour x 8 hours work = \$80 earned

Figure out how much the same person would earn working the same hours each day after one week at the job.

Figure out how much the same person would earn working the half the hours each day after one week at the job.

11. Exodus 21:29 But if the ox were wont to push with his horn in time past, and it hath been testified to his owner, and he hath not kept him in, but that he hath killed a man or a woman; the ox shall be stoned, and his owner also shall be put to death.

Application: The word *time* in this passage refers to a time in the past and could have been an event that happened one than once.

12. Exodus 34:21 Six days thou shalt work, but on the seventh day thou shalt rest: in earring time and in harvest thou shalt rest.

Application: This word *time* in this verse refers to the time of harvest, which is generally around October. Time can be charted in accordance with the seasons, such as in the making and use of the calendar.

There is a time change that is enacted each year at harvest time (in the Fall) and again at planting time (in the Spring). Clocks are reset by an hour during these times. This is to accommodate the slight shift in Sun light during these two times of the year.

13. Leviticus 25:32 Notwithstanding the cities of the Levites, and the houses of the cities of their possession, may the Levites redeem at any time.

Application: This word *time* has a meaning of time that goes on perpetually without end, either into the future or into the past. Some thing that is perpetual is something that had nothing that began it and also comes to no end.

14. Leviticus 26:5 And your threshing shall reach unto the vintage, and the vintage shall reach unto the sowing time: and ye shall eat your bread to the full, and dwell in your land safely.

Application: The word *time* in this verse refers to the time of sowing seed, generally around March. Once again time can be charted in accordance with the seasons, such as is found in the making of calendars for tracking time.

15. Numbers 14:14 And they will tell it to the inhabitants of this land: for they have heard that thou LORD art among this people, that thou LORD art seen face to face, and that thy cloud standeth over them, and that thou goest before them, by day time in a pillar of a cloud, and in a pillar of fire by night.

Application: The word *time* in this verse has the meaning “daytime.” It can also refer to something that occurs “daily.” Daytime is a more or less specific time. It can be established between dawn and dusk (between Sun up an Sun down).

16. Deuteronomy 6:20 And when thy son asketh thee in time to come, saying, What mean the testimonies, and the statutes, and the judgments, which the LORD our God hath commanded you?

Application: The word *time* in this verse refers to the next day from the current day or tomorrow. This is a specific time, depending on a known time and covering a period of 24 hours.

17. Deuteronomy 19:6 Lest the avenger of the blood pursue the slayer, while his heart is hot, and overtake him, because the way is long, and slay him; whereas he was not worthy of death, inasmuch as he hated him not in time past.

Application: This word *time* refers to an indefinite time in the past, usually before yesterday. You might here this referred to as a “time of old” or maybe “bygone days.”

18. Revelation 22:10 And he saith unto me, Seal not the sayings of the prophecy of this book: for the time is at hand.

Application: The word *time* in this verse refers to a set, fixed, or proper time. This could be a time such as season.

Space

1. Genesis 29:14 And Laban said to him, Surely thou art my bone and my flesh. And he abode with him the space of a month.

Application: The word *space* in this verse refers to a “space of time,” such as from the beginning of the day until the end of the day (or a 24-hour period).

2. Genesis 32:16 And he delivered them into the hand of his servants, every drove by themselves; and said unto his servants, Pass over before me, and put a space betwixt drove and drove.

Application: The word *space* in this verse refers to an interval or distance of space that is between one object and another.

3. 1 Samuel 26:13 Then David went over to the other side, and stood on the top of an hill afar off; a great space being between them:

Application: The word *space* in this verse speaks of that of a room, office, house, or the same. This inference could also be to a distance between objects or positions.

4. Ezra 9:8 And now for a little space grace hath been shewed from the LORD our God, to leave us a remnant to escape, and to give us a nail in his holy place, that our God may lighten our eyes, and give us a little reviving in our bondage.

Application: The word *space* in this verse infers a very short space of time. It could be used to mean an instant, a moment, or suddenly.

5. Ezekiel 40:12 The space also before the little chambers was one cubit on this side, and the space was one cubit on that side: and the little chambers were six cubits on this side, and six cubits on that side.

Application: The word *space* in this verse refers to a boundary; an enclosed territory, such as a border, a quarter, or a space. It means an area set off by landmarks.

6. Luke 22:59 And about the space of one hour after another confidently affirmed, saying, Of a truth this fellow also was with him: for he is a Galilaean.

Application: The word *space* in this verse refers to an area between something that has been set apart.

7. Acts 5:7 And it was about the space of three hours after, when his wife, not knowing what was done, came in.

Application: The word *space* means an interval, a distance, or a space of time.

8. Acts 5:34 Then stood there up one in the council, a Pharisee, named Gamaliel, a doctor of the law, had in reputation among all the people, and commanded to put the apostles forth a little space;

Application: The word *space* refers to a little space of time. It also means to be of few words, or a little space or a little while.

9. Acts 15:33 And after they had tarried there a space, they were let go in peace from the brethren unto the apostles.

Application: The word *space* in this verse indicates a space of time (in general) or an interval, a delay for a season, or a space of time.

Addition

1. Genesis 5:3 And Adam lived an hundred and thirty years, and begat a son in his own likeness, after his image; and called his name Seth.

Application: B.C. 3874. hundred. The chronology differs in the Hebrew text, the Samaritan, the LXX., and Josephus. The LXX. adds 100 years to each of the patriarchs Adam, Seth, Enos, Cainan, Mahalaleel, and Enoch, before the birth of their sons; while they take 20 from the age of Methuselah, and add 6 to that of Lamech. Thus the space from the creation to the deluge is made 2,242 years, according to the Vatican copy, but 2,262 by the Alexandrine; and the sum total by Josephus is 2,265, by the Samaritan 1,307, and the Hebrew Text, 1,656. The sum total from the Deluge to the 70th year of Terah, according to these authorities, is, Heb. 292; Sam. 942; Sept. Vat. 1,172; Alex. 1,072, and Josephus 1,002.

Expression: What do you think? We could add these times ourselves and come up with what the Scripture tells us:

After 130 years Adam begat Seth

After 105 years Seth begat Enos

After 90 years Enos begat Cainan

After 70 years Cainan begat Mahalaleel

After 65 years Mahalaleel begat Jared

After 162 years Jared begat Enoch

After 65 years Enoch begat Methuselah

After 187 years Methuselah begat Lamech

After 182 years Lamech begat Noah

After 500 years Noah begat Shem, Ham, and Japheth

Add the years up yourself and see what number you come up with. Does your total match any of the authorities' figures?

2. Leviticus 27:15 And if he that sanctified it will redeem his house, then he shall add the fifth part of the money of thy estimation unto it, and it shall be his.

Application: It was tradition for the priest, who had by rite no inheritance, to bless your house and then estimate its cost. Then you were to add one-fifth to the amount he estimated it at to be his.

Expression: We can see how imagining a price of \$100,000 for a home that you own could represent this situation. Say the priest estimated the worth of your home at this value. We first would find a fifth of the value by dividing the value by five. Then we would add the fifth amount to the original value.

Formula: $\$100,000 / 5 = \$20,000$. Then $\$100,000 + \$20,000 = \$120,000$

3. Exodus 12:40 Now the sojourning of the children of Israel, who dwelt in Egypt, was four hundred and thirty years.

Application: The Samaritan Pentateuch reads, "Now the sojourning of the children of Israel, and of their fathers in the land of Canaan and in the land of Egypt, was 430 years." The same statement is made by the apostle Paul, in Ga 3:17, who reckons from the promise made to Abraham to the giving of the law. That these three witnesses have the truth, the chronology itself proves; for it is evident that the descendants of Israel did not dwell 430 years in Egypt; while it is equally evident, that the period from Abraham's entry into Canaan to the Exodus, is exactly that number. Thus, from Abraham's entrance into the promised land to the birth of Isaac, was 25 years; Isaac was 60 at the birth of Jacob; Jacob was 130 at his going into Egypt; where he and his children continued 215 years more; making in the whole 430 years.

Subtract

1. 1 Kings 7:15 For he cast two pillars of brass, of eighteen cubits high apiece: and a line of twelve cubits did compass either of them about.

Application: "...eighteen cubits." That is, nearly thirty feet, English measure. But in the parallel place in Chronicles, these pillars are said to thirty-five cubits high. Tremellius reconciles this difference by observing, that the common cubit was but one-half of the cubit of the sanctuary; so that eighteen of the one would make thirty-six of the other; from which, if we deduct one cubit for the base, there will remain thirty-five. Notwithstanding the names of these pillars, they seem to have supported no part of the building, and appear to have been formed for ornament; and were no doubt also emblematical. The right pillar was called {Jachin,} which signifies, "He will establish;" while that on the left was named {Boaz,} "In it is strength." Some think they were intended for

memorials of the pillars and cloud of fire, which led Israel through the wilderness; but Henry supposes them designed for memorandums to the priests and others that came to worship at God's door. 1st. To depend upon God only, and not upon any sufficiency of their own, for strength and establishment in all their religious exercises. 2nd. It was a memorandum to them of the strength and establishment of the temple of God among them. When the temple was destroyed, particular notice is taken of the breaking up and carrying away of these brazen pillars, 2 Ki 25:13, 17, which had been the tokens of its establishment, and would have been still so, if they had not forsaken God.

Expression: It is true that generally a cubit is 1.5 feet (18 inches). Thereby, 18 cubits would bring the height of the pillars to 27 feet (not 30 feet). The reference in Chronicles says that they measured 35 feet. If the difference was the measure of the base, we could measure that by subtracting 27 feet from the Chronicles calculation.

Formula: 35 feet minus 27 feet equals the height of the base
 or: 35 ft – 27 ft = an 8 foot base

2. Ezekiel 39:2 And I will turn thee back, and leave but the sixth part of thee, and will cause thee to come up from the north parts, and will bring thee upon the mountains of Israel.

Application: I will. It is probable that none of the invaders will escape: but perhaps the inhabitants of Magog in general are meant. The immense army of Gog, led forth against Israel, will almost empty his land; and the subsequent judgments of God upon those that remain at home, will reduce them to a sixth of the whole.

Expression: If God were to bring a judgment against the U.S.A., as this that He did to the inhabitants of Magog, what would be the number of people remaining after the judgment was carried out? Saying that we have 250,000,000 people, we would have to first determine what one sixth of that number is. Then we would subtract that one-sixth from the amount of people estimated in the U.S.A.

Formula: $250,000,000 / 6 = 4,166,667$ (rounded up) is one sixth. Then $250,000,000 - 4,166,666 = 20,833,334$ people remaining.

3. Numbers 26:51 These were the numbered of the children of Israel, six hundred thousand and a thousand seven hundred and thirty.

Application: The following comparative statement will show how much some of the tribes had increased, and others had diminished, since the enumeration in Deuteronomy chapter 1:

Now.	Before.	
1. Reuben	43,730	46,500
2. Simeon	22,200	59,300

3. Gad	40,500	45,650
4. Judah	76,500	74,600
5. Issachar	64,300	54,400
6. Zebulun	60,500	57,400
7. Manasseh	52,700	32,200
8. Ephraim	32,500	40,500
9. Benjamin	45,600	35,400
10. Dan	64,400	62,700
11. Asher	53,400	41,500
12. Naphtali	45,400	53,400
Total	<u>601,730</u>	<u>603,550</u>

Thus we find there was the following increase and decrease in the several tribes:

1. Reuben	2,770 decrease
2. Simeon	37,100 decrease
3. Gad	5,150 decrease
4. Judah	1,900 increase
5. Issachar	9,900 increase
6. Zebulun	3,100 increase
7. Manasseh	20,500 increase
8. Ephraim	8,000 decrease
9. Benjamin	10,200 increase
10. Dan	1,700 increase
11. Asher	11,900 increase
12. Naphtali	8,000 decrease

Decrease in all	61,020
Increase in all	59,200

Decrease on the whole . . . 1,820

It should be observed, that among these there was not one of the former census, except Joshua and Caleb. (See ver. 64, 65.) Thus, though there was such an amazing increase in seven tribes, yet so great was the decrease in the other five tribes, that the balance against the present census is 1,820, as appears above. Notwithstanding the amazing increase in some, and decrease in other tribes, the same sort of proportion is kept in their several divisions; so as to keep the division in the front the largest, and that in the rear the next.

Expression: Whether it is an increase or a decrease in the number in the tribes, either way that difference is found by subtracting the smaller number from the larger one. For example, the tribe Reuben was 46,500 before and was 43,730 after. Subtracting 43,730 from 46,500 finds the difference.

4. Numbers 29:12 And on the fifteenth day of the seventh month ye shall have an holy convocation; ye shall do no servile work, and ye shall keep a feast unto the LORD seven days.

Application: The fifteenth day. This was the feast of Tabernacles, kept in commemoration of their dwelling in tents in the wilderness for forty years. The first and last days were to be kept as Sabbaths, on which there were solemn assemblies; and for seven days sacrifices were offered. On the other festivals, two bullocks sufficed, (ch. 28:11, 19, 27), and on the festival at the beginning of this month, only one was appointed; but, on the first day of this festival, thirteen young bullocks were appointed; and so on each successive day, with the decrease of only one bullock, till on the seventh day, there were only seven, making in all seventy bullocks. The lambs, and the rams also, were in a double proportion to the number sacrificed at any other festival. This was an expensive service; but more easy at this time of the year than any other, as Bishop Patrick observes, because now their barns were full, and their wine-presses overflowed; and their hearts might well be supposed to be more enlarged than at other times, in thankfulness to God for the multitude of his mercies. The Jewish doctors give this reason for the daily diminution of the number of the bullocks: the whole number, say they, was according to the languages of the seventy nations of the world; and the diminution of one every day signified, that there should be a gradual diminution of those nations till all things were brought under the government of the Messiah; in whose days "no sacrifices shall remain, but those of thanksgiving, prayer, and praise."

Expression: Subtraction in strict observance was kept during these feast days, even to the sacrifice of young bullock as follows:

day one	13 bullock =	13
day two	13 – 1 bullock =	12
day three	13 – 2 bullock =	11
day four	13 – 3 bullock =	10
day five	13 – 4 bullock =	9
day six	13 – 5 bullock =	8
day seven	13 – 6 bullock =	<u>7</u>
		70 bullock by the 7 th day

Division

1. Genesis 8:22 While the earth remaineth.
 Heb. as yet all the days of the earth.
 Isaiah 54:8

Application: Seed-time. Most of the European nations divide the year into four distinct parts, called quarters or seasons; but there are six divisions in the text, which obtained in Palestine among the Hebrews, and exist among the Arabs to the present day. According to this gracious promise,

the heavenly bodies have preserved their courses, the seasons their successions, and the earth its increase for the use of man.

What is it called when something is divided into fourths?

What denomination of our money gets its name from the term for fourths of a dollar?

2. Genesis 49:7 Cursed be their anger, for it was fierce; and their wrath, for it was cruel: I will divide them in Jacob, and scatter them in Israel.

Application: I will divide. The word divide means to apportion or separate through the means of dealing out, distributing, dividing up, giving out, take away a portion of, or receiving.

Apportion: To divide and assign in just proportion; to distribute among two or more, a just part or share to each; as, to apportion undivided rights; to apportion time among various employments.

Expression: Apportion the number eight in four portions.

Formula: eight divided by four equals ?

or: $8 / 4 = 4$ equal portions of 2 each

Separate: The word separate means to disunite; to divide; to sever; to part, in almost any manner, either things naturally or casually joined. The parts of a solid substance may be *separated* by breaking, cutting or splitting, or by fusion, decomposition or natural dissolution. A compound body may be *separated* into its constituent parts. Friends may be *separated* by necessity, and must be *separated* by death. The prism *separates* the several kinds of colored rays. A riddle *separates* the chaff from the grain.

Expression: Separate a kind of vegetable or another food you have into several pieces. This is division by separation.

Dealing: The word dealing means to distribute evenly among those participating in a deal and playing the game.

Expression: Determine how many persons would be in a card game, if the person dealing cards dealt all the cards in the deck and each person was dealt 13 cards (Hint: 52 cards in a deck of cards).

Formula: number of cards in deck divided by number of cards dealt to each player equals the number of players in the game.

or: $52 \text{ cards} / 13 \text{ cards} = 4$ players

Distributing: The word *distribute* means to divide among two or more; to deal; to give or bestow in parts or portions. Moses distributed lands to the tribes of Israel. Christ distributed the loaves to his disciples. It also means:

To dispense; to administer; as, to distribute justice.
 To divide or separate, as into classes, orders, kinds or species.
 To give in charity.
 Distributing to the necessities of the saints. Romans 12.
 In printing, to separate types, and place them in their proper cells in the cases.
 Dividing: The word *divide* means to part or separate an entire thing; to part a thing into two or more pieces.
 Divide the living child in two. 1 Kings 3.
 The word divide also means:
 To cause to be separate; to keep apart by a partition or by an imaginary line or limit. A wall divides two houses. The equator divides the earth into two hemispheres.
 Let the firmament divide the waters from the waters. Genesis 1.
 To make partition of, among a number.
 Ye shall divide the land by lot. Numbers 33.
 To open; to cleave.
 Thou shalt divide the sea. Nehemiah 9.
 To disunite in opinion or interest; to make discordant.
 There shall be five in one house divided, three against two--Luke 12.
 To distribute; to separate and bestow in parts or shares.
 And he divided to them his living. Luke 15.
 To make dividends; to apportion the interest or profits of stock among proprietors; as, the bank divides six per cent.
 To separate into two parts, for ascertaining opinions for and against a measure; as, to divide a legislative house, in voting.

3. Exodus 29:40 And with the one lamb a tenth deal of flour mingled with the fourth part of an hin of beaten oil; and the fourth part of an hin of wine for a drink offering.

Exodus 16:36; Numbers 15:4,9; 28:5,13

Application: Deal. The word *deal* signifies a part, from the Anglo-Saxon {dæl,} a part, or portion, taken from the whole, from {dælan,} to divide. From Numbers 28:5, we learn, that this tenth {deal} was the tenth part of an {ephah,} which constituted an {omer,} about three quarts English.

Expression: To divide a tenth part of flour, we have to know how much flour is in an ephah, which is around five bushels. To divide a tenth part of oil, we have to know how much oil is in a hin, which is four quarts. since we now know there are four quarts in a hin, the fourth part of a hin should be able to be figured.

Formula: 5 bushels divided by 10 bushels equals a tenth of flour. 4 quarts of oil divided by 4 equals a fourth part of oil. 4 quarts of wine divided by 4 equals a fourth part of wine.

or: 5 bushels / 10 bushels = ½ bushels of flour. 4 quarts / 4 = 1 quart of oil.
 4 quarts / 4 = 1 quart of wine

4. Exodus 36:35 And he made a vail of blue, and purple, and scarlet, and fine twined linen: with cherubims made he it of cunning work.

Application: Vail of blue. {Parachoth,} from {parach,} to separate, divide, make a distinction between somewhat, the inner vail, which divided the tabernacle into two, and separated, and made a distinction between the Holy place and the Holy of Holies. This vail was made of the same rich materials as the inner covering of the tabernacle, and curiously embroidered with cherubim and other ornaments. Though it does not appear from Scripture at what distance from either end of the tabernacle this vail was hung, yet is reasonably conjectured, that it divided it in the same proportion in which the temple, built after this model, was divided; that is, two-thirds of the whole length were allotted to the first room, and one-third to the second; so that the room beyond the vail, the Holy of Holies, was exactly square, being ten cubits each way, and the first room, the sanctuary, was twice as long as it was broad.

Expression: According to 2 Chronicles 3:3, the temple Solomon built for God measured 30 yards long. To determine how big the main temple room and the Holy of Holies was on either side of the blue vail, we have to divide. We have one room as two-thirds the length and the other one third. Thirds indicates the number three. 30 feet divided by three feet will tell us the measure of one-third the length (the length of the Holy of Holies). Two of these distances are the length of the main room of the Temple.

Formula: 30 feet divided by three equals one-third the length of the Temple (and the Holy of Holies). One-third the Temple length times two equals the main room length.

or: $30 \text{ feet} / 3 = 10 \text{ feet}$ (length of Holy of Holies). $10 \text{ feet} \times 2 = 20 \text{ feet}$ (length of the main temple room).

The Holy of Holies was as wide as is it was long. How wide is the Holy of Holies? What geometric shape was the Holy of Holies?

The main room of the Temple was the same width of the Holy of Holies. How wide was the main room of the Temple? What geometric shape was it?

5. Numbers 11:1 And when the people complained, it displeased the LORD: and the LORD heard it; and his anger was kindled; and the fire of the LORD burnt among them, and consumed them that were in the uttermost parts of the camp.

Applicaton: This story in history goes this way:

Verse 1: The burning at Taberah quenched by Moses' prayer.

Verse 4: The people lust for flesh, and loathe manna.

Verse 10: Moses complains of his charge.

Verse 16: God promises to divide his burden unto seventy elders, and to give the people flesh for a month.

Verse 21: Moses' faith is staggered.

Verse 31: Quails are given in wrath at Kibroth-hattaavah.

Expression: Moses reportedly had responsibility for many families in the desert. Just supposing that he had 100,000 people for which to care. Now God has him divide this responsibility among seventy elders evenly. How many people would each of the men be responsible to feed? To figure this, we would have to divide 100,000 people by seventy elders.

Formula: 100,000 people divided by seventy elders equals the number of people each elder fed.

or: $100,000 / 70 =$ roughly 1429 people each (1428.5714 people to be more exact)

6. Numbers 33:54 And ye shall divide the land by lot for an inheritance among your families: and to the more ye shall give the more inheritance, and to the fewer ye shall give the less inheritance: every man's inheritance shall be in the place where his lot falleth; according to the tribes of your fathers ye shall inherit.

Application: God said that "ye shall divide."
 Numbers 26:53-56
 God said to "give the more inheritance," which in the Hebrew means to "multiply his inheritance."
 Numbers 26:54
 God said to "give the less inheritance," which in the Hebrew means to "diminish his inheritance in the place."

God expressed here a method of mathematics that used division of the same proportion of an inheritance to reduce one people's inheritance so as to be able to multiple another people's inheritance. Notice that this was something that a human being could do without use of supernatural effect.

Expression: In order to accomplish a multiplication of one portion of the inheritance, we must reduce the other portion. To do this we can imagine that there were three people who inherited third shares. In order for one worth person to inherit a multiple, with depleting the shares, we must imagine that the good person received two time his share which would be two thirds the total shares, this would leave one third of the shares to be split by the lesser people. This would amount to a less or diminished inheritance.

Formula: Amount of inheritance divided by 3 time 2 equals what the good got.
 Amount of inheritance divided by 3 divided by 2 equals what the lesser two people each got.

or: $\$900 / 3 \times 2 = \600 (for the good person). $\$900 / 3 / 2 = \150 (for each of the lesser guys).

Do the following exercise three times: Make up any amount of money left for an inheritance to three people. Use the formula given to determine how much the good and the lesser would inherit from the amount you made up.

Can you use the same formula, substitute numbers, and figure out an inheritance for two good and three lesser?

7. Joshua 1:6 Be strong and of a good courage: for unto this people shalt thou divide for an inheritance the land, which I sware unto their fathers to give them.

Application: God told Joshua that he must “be strong,” “unto this people.” “shalt cause this people to inherit the land. Then God told him to “divide” the land....

Division has been around since the beginning of society as a way of justly administering an inheritance that God has for His own people. What if you had come into Canaan and had to divide up the fertile land among the tribes and the people of Israel? Could you figure how to do this? Would you have to know how to divide?

Expression: Suppose that 30,000 acres were given to 60,000 families. To determine how many acres each family would be given, we would have to divide the families into the acres. Of course, in a real life situation there might be more details and stipulations

Formula: X acres divided by Y families equals how many acres each families receives

or: $30,000 \text{ acres} / 60,000 \text{ families} = 0.5 \text{ or } \frac{1}{2} \text{ an acre per family}$

8. Joshua 9:6 And they went to Joshua unto the camp at Gilgal, and said unto him, and to the men of Israel, We are come from a far country: now therefore make ye a league with us.

Application: In “the camp,” the inhabitants of Gibeon said to Joshua and the men of Israel “make ye,” which was {Kirthoo lanoo berith,} and meant to “cut or divide with them a covenant.” Rather than make war, they wanted to strike a covenant with them for a division of the land. (This was according to Deut. 29:12.)

A covenant was typically divided in two and the parties on both side walked between. This would mean that the people of Israel would willingly give up half their land. Before, we decided on a figure of 30,000 acres of fertile land for 60,000 Israelites. If they entered into this covenant, could you figure out how much land each family would half to give up?

Expression: We had figured that the Israelites would divide 30,000 acres of fertile land among 60,000 families. Now the covenant would reduce each family’s share of land by one-half. To determine this amount we would need to divide by two. Then to determine how many acres each Israelite family would give up, we would half to continue the division.

Formula: X acres divided by Y families equals how many acres (Z) each family receives. Then Z divided by two equals the amount of acres the Israelites would give up

or: $30,000 \text{ acres} / 60,000 \text{ families} = 0.5$ or $\frac{1}{2}$ an acre per family. $0.5 / 2 = 0.25$ or $\frac{1}{4}$ of an acre (how much land the Israelites would have to give up in the covenant with the Gibeonites)

9. Joshua 22:8 And he spake unto them, saying, Return with much riches unto your tents, and with very much cattle, with silver, and with gold, and with brass, and with iron, and with very much raiment: divide the spoil of your enemies with your brethren.

Application: Divisions are not always in a single denomination or state that allows easy and equitable division. The spoils of war are often items of value and of all sorts. You could only look to their value to divide them equitably, but would probably not be exact in weight or measure.

Another example of how some things just cannot be divided, when the call is to do so might be found in 1 Kings 3:25 where King Solomon's command was to "divide." Divide. This was apparently a very strange decision; but Solomon saw that the only way to discover the real mother was by the affection and tenderness should would necessarily shew to her offspring. The plan was tried, and succeeded; and it was a proof of his sound judgment, penetration, and acquaintance with the human heart, or rather, of his extraordinary and supernatural wisdom. See verse 28. The two following instances are in some faint manner to be compared to Solomon's decision, inasmuch as they also work upon the human sympathies. Suetonius, in his Life of the emperor Claudian, tells us, that this emperor discovered a woman to be the real mother of a young man, whom she refused to acknowledge, by commanding her to marry him, the proofs being doubtful on both sides; for, rather than commit incest, she confessed the truth. Diodorus Siculus also informs us, that Ariopharnes, king of Thrace, being appointed to decide between three young men, each of whom professed to be the son of the deceased king of the Cimmerians, and claimed the succession, discovered the real son by ordering each to shoot an arrow into the dead body of the king: two of them did this without hesitation; but the real son of the deceased monarch refused.

Fractions

1. Genesis 41:34 Let Pharaoh do this, and let him appoint officers over the land, and take up the fifth part of the land of Egypt in the seven plenteous years.

Application: There was a period of time where Pharaoh took part of (or a fraction of) the land as a tax. Whatever was produced on this fifth part of the land that a person worked was to be given to Pharaoh.

Expression: One fifth of the farmer's land was a fraction $\frac{1}{5}$ that must be determined by finding the number of acres and dividing by the number 5 (the

denominator). The denominator is the number at the bottom of the fraction. The numerator is the number at the top of the fraction and is determined by how many fifths are in question. In this case the numerator is 1.

Formula: The total number of acres (X), divided by five, equals one fifth of the total acres of land (A).

or: $X / 5 = A$

NUMERATOR, n. [L.] In arithmetic, the number in vulgar fractions which shows how many parts of a unit are taken. Thus when a unit is divided into 9 parts, and we take 5, we express it thus, $5/9$, that is, five ninths; 5 being the numerator, and 9 the denominator.

DENOMINATOR, n. In arithmetic, that number placed below the line in vulgar fractions, which shows into how many parts the integer is divided. Thus in $3/5$, 5 is the denominator, showing that the integer is divided into five parts; and the numerator 3 shows how many parts are taken, that is, three fifths.

2. Exodus 16:36 Now an omer is the tenth part of an ephah.

Application: An ephah is a dry measure of quantity, equal to 3 seahs, 10 omers; the same as the liquid measure bath; (about 9 imperial gallons, rabbinical writings give sizes of one-half this amount).

Expression: In order to see the omer as the fraction $\frac{1}{10}$, we must see the ephah as the whole measure. It takes ten parts, each measured as an omer, to equal the denominator of 10 in this fraction. The measure then of 1 of these tenths is the numerator (or number) of these tenths. Again, to determine the measure of the fraction $\frac{1}{10}$, we must divide the ephah by 10 equal parts.

Formula: The total number of omers in one ephah (X), divided by 10, equals one tenth of the ephah (A).

or: $X / 10 = A$

3. Numbers 18:26 Thus speak unto the Levites, and say unto them, When ye take of the children of Israel the tithes which I have given you from them for your inheritance, then ye shall offer up an heave offering of it for the LORD, even a tenth part of the tithe.

Application: Something very interesting, that was little thought about, was that God not only demanded that the children of Israel bring a tenth or the first fruits of their produce or flock to the Temple as an heave offering, but He told Moses to tell the Levites that a heave offering was also expected of them from these tithes as their heave offering to God. It was to be given to Aaron the high priest of that time. The Levites did not have an inheritance, but this did not mean they were not expected to tithe.

Expression: The quantity of this tithe from the Levites was the fraction $\frac{1}{10}$ of the tithe of the children of Israel, which was $\frac{1}{10}$. This means that the tithe that was offered by the Levites was a tenth of a tenth. To determine this

amount, we can figure what part it was of the total production or yield God gave to the people. To find one tenth of one tenth, we can determine that fraction by multiplying one-tenth times one-tenth.

Formula: $X \text{ times } Y = Z$ (multiply the fractions by the numerators and then the denominators to get the smaller fraction)

or: $\frac{1}{10} \times \frac{1}{10} = \frac{1}{100}$ (That is, $1 \times 1 = 1$ over $10 \times 10 = 100$)

4. 1 Samuel 9:8 And the servant answered Saul again, and said, Behold, I have here at hand the fourth part of a shekel of silver: that will I give to the man of God, to tell us our way.

Application: It is significant that the Scripture point out that this shekel was of silver. Had it been of gold, it would have been of higher value (maybe to the value of twice as much). However, we are talking hear of not a whole shekel, but rather a fourth of one shekel. This fraction must be determined against the worth of the whole value of the shekel. Since 1 is the numerator of the fraction $\frac{1}{4}$, we are looking at the value of one part of four equal parts of the value of the shekel.

Expression: To determine $\frac{1}{4}$ of the shekel, we must realize that the value of a whole shekel (silver) was around 50 cents (or $\frac{1}{2}$ of a dollar). The equation will be found by dividing .50 by 4.

Formula: $.50 / 4 = .125$ which is roughly $12 \frac{1}{2}$ cents. Since we cannot divide a cent, we will say it is 13 cents.

5. 1 Kings 6:33 So also made he for the door of the temple posts of olive tree, a fourth part of the wall.

Application: The Temple walls were enormous and so must have been the doors. These doors, we are told, were made out of olive trees. The doors, we are also told, comprised $\frac{1}{4}$ the length of the wall.

Expression: We can determine the length of the wall, because we know that the door was only $\frac{1}{4}$ of its length. Since 1 whole wall length is made up of 4 fourths, we know that if we take 1 fourth from 4 fourths we get 3 fourths. Therefore, the wall portion is $\frac{3}{4}$ the extent of the entire length of the wall.

6. Nehemiah 9:3 And they stood up in their place, and read in the book of the law of the LORD their God one fourth part of the day; and another fourth part they confessed, and worshipped the LORD their God.

Application: In the twenty-fourth day of the month the children of Israel were assembled with fasting, and with sack clothes, and earth upon them. They separated themselves from stranger, confessed their sins, and the iniquities of their fathers. They stood and did these things for $\frac{1}{2}$ of the

entire day. This was a devout confession of God's goodness, and their wickedness.

Expression: They did a couple different things during this half-day period. They spent $\frac{1}{4}$ of this day reading in the book of the Law and then $\frac{1}{4}$ of this day in confession and prayer. We can determine how many hours they spent in these activities by the hours in one day (24 hours) by four.

Formula: $24 \text{ hours} / 4 = 6 \text{ hours}$ which is $\frac{1}{4}$ of a day. So they spent two times 6 hours standing (12 hours which is $\frac{1}{2}$ a day, that is, $\frac{1}{4} + \frac{1}{4}$).

Percentage and Interest

1. Nehemiah 5:11 Restore, I pray you, to them, even this day, their lands, their vineyards, their olive yards, and their houses, also the hundredth part of the money, and of the corn, the wine, and the oil, that ye exact of them.

Application: The hundredth part. This was probably the rate of interest, which they obliged their poor debtors to pay each month, which would amount to about 12%. This is the lowest rate of interest in Syria: the usual rate is 20%; and it is sometimes as high as 30%.

Expression: A percentage is a part of the whole of something. It is closely related to fractions, in that it is a part of the whole. For example, 20 goes into 100 5 times, therefore, we can say that 20 is $\frac{1}{5}$ of 100. 20% is also $\frac{1}{5}$ of 100%. A hundredth part is really a small portion that makes up one hundred parts of a whole (or $\frac{1}{100}$ %).

2. Nehemiah 10:32 Also we made ordinances for us, to charge ourselves yearly with the third part of a shekel for the service of the house of our God.

Application: The third part. According to the law, every one above twenty years of age was to give half a shekel to the sanctuary for a ransom for their souls. But, on account of the general poverty of the people, occasioned by their wars, and captivity, and by heavy tributes, etc., in the land of their captivity, this sum was reduced to the third part of a shekel.

Expression: The change from what the law had stated and what is changed to could be looked at as a percentage of change. We can figure out that percentage of change in the tribute or tax by figuring out the difference. One shekel was approximately the same as 50 cents. Difference is usually indicated through subtracting a smaller number from a larger one. It is the same with percentages. First we must determine what one half of a shekel equals. Then we must figure out what one third of a shekel equals. The percentage is the value of the part of the shekel divided by the value of a whole shekel.

Formula: $.50 / 2 = \frac{1}{2}$ shekel or .25 (25 cents). $.25 (\frac{1}{2} \text{ shekel}) / .50 (1 \text{ shekel}) = 50\%$
 $.50 / 3 = \frac{1}{3}$ shekel or .17 (17 cents). $.17 (\frac{1}{3} \text{ shekel}) / .50 (1 \text{ shekel}) = 33\%$
 $.50 (50\%) - .33 (33\%) = \text{a } 17\% \text{ difference}$

Multiplication

1. Leviticus 25:50 And he shall reckon with him that bought him from the year that he was sold to him unto the year of jubilee: and the price of his sale shall be according unto the number of years, according to the time of an hired servant shall it be with him.

Application: Price of his sale. This was a very equitable law, both to the sojourner to whom the man was sold, and to the Israelite who had been sold. The Israelite might redeem himself, or one of his kindred might redeem him; but this must not be done to the prejudice of his master. They were therefore to reckon the years he must have served, from that time till the jubilee; and then taking the current wages of a servant, per year, at that time, multiply the remaining years by that sum, and the aggregate was to be given to his master for his redemption. The Jews hold that the kindred of such a person were bound, if in their power, to redeem him, lest he should be swallowed up among the heathen; and we find (Nehemiah 5:8) that the Jews on their return from the Babylonian captivity did this according to the time.

Expression: If you were a slave of the Babylonians and you were set to serve a master ten years to the jubilee and the wage would have been one dollar a day, we could figure how much it would cost your family to redeem you from slavery.

Formula: 10 years time 365 days times one dollar equals the cost of redeeming you from slavery

or: $10 \times 365 \text{ days} = 3,650 \times \$1 = \$3,650$ for redemption

Angles

1. Genesis 20:1 And Abraham journeyed from thence toward the south country, and dwelled between Kadesh and Shur, and sojourned in Gerar.

Application: Gerar was a city of Arabia Petræa, under a king of the Philistines, 25 miles from Eleutheropolis beyond Daroma, in the south of Judah. From Genesis 10:19, it appears to have been situated in the angle where the south and west sides of Canaan met, and to have been not far from Gaza. Jerome, in his Hebrew Traditions on Genesis, says, from Gerar to Jerusalem was three days' journey. There was a wood near Gerar, spoken of by Theodoret; and a brook (Genesis 26:26), on which was a monastery, noticed by Sozomen.

The key here is in Genesis 10:19, where we see that the approach to the city of Gerar from Sidon is straight south while the approach to Gerar from Gaza was directly east.

Expression: If we draw a line from Gaza to Gerar, this forms a baseline. Then we can draw a line from Sidon to Gerar. These two perpendicular lines form what is called a "right angle." If we use a protractor to measure the

inside of this angle from the base line (the horizontal line) to the vertical line, we will find that it is a 90-degree angle. All right angles are 90 degrees and their lines meet at a single point.

Are there other cities that you can find that will form a right angle to each other?

2. Joshua 10:38 And Joshua returned, and all Israel with him, to Debir; and fought against it.

Application: Debir. Debir was situated in the south of the tribe of Judah, near Hebron. The expression of Joshua's returning to Debir, probably denotes, that having carried his conquests in the southern parts as far as Gaza, (ver. 41,) which was in the south-west angle of Canaan, he then marched back to besiege Debir.

Expression: Since it is not clear exactly where the ancient city of Debir was situated, a mapmaker could draw a southwest line, of some length from the city of Hebron. Then he could draw another line from Gaza directly east and past Hebron. The point at which these lines intersected would be the approximate location of the city of Debir.

Use your protractor to measure the angle from the base line (from the intersecting point to Gaza) to the more vertical line (from the intersecting point to Hebron). How many degrees does the angle measure? An angle that measures more than 90 degrees is called an "obtuse angle."

3. Judges 1:31-32 Neither did Asher drive out the inhabitants of Accho, nor the inhabitants of Zidon, nor of Ahlab, nor of Achzib, nor of Helbah, nor of Aphik, nor of Rehob: But the Asherites dwelt among the Canaanites, the inhabitants of the land: for they did not drive them out.

Application: Asher. (Joshua 19:24-31) And the fifth lot came out for the tribe of the children of Asher according to their families. And their border was Helkath, and Hali, and Beten, and Achshaph, And Alammelech, and Amad, and Misheal; and reacheth to Carmel westward, and to Shihorlibnath; And turneth toward the sunrising to Bethdagon, and reacheth to Zebulun, and to the valley of Jiphthahel toward the north side of Bethemek, and Neiel, and goeth out to Cabul on the left hand, And Hebron, and Rehob, and Hammon, and Kanah, even unto great Zidon; And then the coast turneth to Ramah, and to the strong city Tyre; and the coast turneth to Hosah; and the outgoings thereof are at the sea from the coast to Achzib: Ummah also, and Aphek, and Rehob: twenty and two cities with their villages. This is the inheritance of the tribe of the children of Asher according to their families, these cities with their villages.

Accho. Accho, the Ptolemais of the Greeks and Romans, and called Saint John of Acre by the Crusaders, is situated on the Mediterranean, in

a fine plain, at the north angle of a bay to which it gives name, and which extends in a semicircle of three leagues as far as Carmel, and nine leagues from Tyre.

Zidon. Another celebrated city of Phoenicia, now Saidè, situated in a fine country on the Mediterranean, 400 stadia from Berytus, and 200 (north) from Tyre, according to Strabo, one day's journey from Paneas, according to Josephus, and sixty-six miles from Damascus, according to Abulfeda.

Achzib. Or, Ecdippa, now Zib, nine miles north, from Accho.

Expression: The Bible makes drawing the borders of an ancient land fun by making it like a puzzle or a mystery. We must look at all the related passages that give us hints as to the lines drawn. As we look up old maps of where these cities once existed (they could still exist under other names), we begin to get a picture or outline of where these cities and territories were.

Challenge yourself to find actual the borders of the territory that the Tribe of Asher inherited.

4. 1 Kings 7:10 And the foundation was of costly stones, even great stones, stones of ten cubits, and stones of eight cubits.

Application: The foundation was of stones of ten cubits. Reckoning the cubit at 21 inches, the ten cubits are 17 feet and a half, and the eight cubits are 14 feet. The magnitude of these stones was certainly extraordinary; but let us hear of Balbec: "What is still more astonishing is the enormous stones which compose the sloping wall. To the west, the second layer is formed of stones, which are from 28 to 35 feet long, by about 9 in height. Over this layer, at the north-west angle, there are three stones, which alone occupy a space of 175 feet and a half; viz. the first, 58 feet 7 inches; the second, 58 feet 11 inches; and the third, exactly 58 feet; and each of these is 12 feet thick. These stones are of white granite, with large shining flakes, like gypsum: there is a quarry of this kind of stone under the whole city, and another in the adjacent mountains, which is open in several places. On the right, as we approach the city, there is still lying there a stone hewn on three sides, which is 69 feet 2 inches long, 12 feet 10 inches broad, and 13 feet 3 inches in thickness."

Whereas the stones of Solomon's porch and then the greater stones of Balbec seem to astound us, we can learn more about angles from the Balbec description. The layers of stones that made this wall were lined up at angles to each other.

Expression: To figure the angle of difference to each other of the second and third layers of stone on the Balbec wall, we can draw lines. We can draw a line to represent the second layer, which extends out from a single point directly west. Then we can draw a line to represent the third layer,

which extends out from the same single point northwest. We then can take our protractor and measure the inside angle between the base line and the northwest line. This line will be less than 90 degrees. An angle that measures less than 90 degrees is called an “acute angle.”

Why do you think that these stones were lined up at an angle to each other?

Triangles

1. Isaiah 38:8 Behold, I will bring again the shadow of the degrees, which is gone down in the sundial of Ahaz, ten degrees backward. So the sun returned ten degrees, by which degrees it was gone down.

Application: The sundial. In the Hebrew: the degrees by, or, with the sun. Or, as the Hebrew might be rendered, "the steps of Ahaz." In Joshua 10:12-14 we read that God turned back the shadow on the sundial ten degrees.

The researches of curious travelers in Hindostan, observes Bp. Stock, have lately discovered in that country, three observatories of similar form, the most remarkable of which is to be seen within four miles of Delhi, the ancient capital of the Mogul empire. A rectangled triangle, whose hypotenuse is a staircase, (apparently parallel to the axis of the earth,) bisects a zone, or coping of a wall, which wall connects the two terminating towers at right and left. The coping itself is of a circular form, and accurately graduated, to mark, by the gnomon above, the sun's progress before and after noon.

HYPOT'ENUSE, n. [Gr. to subtend.] In geometry, the subtense or longest side of a right-angled triangle, or the line that subtends the right angle.

COPING, n. [See cope, n.] The top or cover of a wall, made sloping to carry off the water. 1 Kings 7:9. A coping over, is a projecting work beveling on its under side.

GNO'MON, n. no'mon. [Gr. an index, to know.]

1. In dialing, the style or pin, which by its shadow shows the hour of the day. It represents the axis of the earth.
2. In astronomy, a style erected perpendicular to the horizon, in order to find the altitude of the sun.
3. The gnomon of a globe is the index of the hour circle.

Expression: We can form a hypotenuse triangle by taking any two lines that form a right angle and drawing a line from the end where the baseline extends to the end where the vertical line extends. If the lines of the right angle are not of an equal length, then the line we have drawn will form a “hypotenuse triangle.” This line will also be the longest of the three lines in the triangle. If the lines of the right angle are the same length, then the line we have drawn will form what is called an equilateral triangle wherein the lines are all the same length.

2. Daniel 3:15 Now if ye be ready that at what time ye hear the sound of the cornet, flute, harp, sackbut, psaltery, and dulcimer, and all kinds of musick, ye fall down and worship the image which I have made; well: but if ye worship not, ye shall be cast the same hour into the midst of a burning fiery furnace; and who is that God that shall deliver you out of my hands?

Application: Psaltery. Pesanter, [psalterion,] a stringed instrument struck with a plectrum; probably similar to what is called a psalterium in Egypt, which Hasselquist describes as a large oblique triangle, with two bottoms two inches from each other, and about twenty catguts of different sizes.

OBLI'QUE, Oblique angles are either acute or obtuse, in opposition to right angles. Designating geometric lines or planes that are neither parallel nor perpendicular.

Expression: The triangle formed by the psalterium would have its baseline at the top and have two sides extending down that do not quite meet at their end. Otherwise, the triangle is not completely closed at one point. These two sides are known as “oblique” because they neither are exactly perpendicular to each other nor are they parallel to each other.

Shapes

1. Genesis 36:33 And Bela died, and Jobab the son of Zerah of Bozrah reigned in his stead

Application: B.C. cir. 1869. Bozrah. Bozrah, Bezer, or Bostra, was situated in Arabia Deserta, and the eastern part of Edom; and, according to Eusebius, was 24 miles from Edrei. It afterwards belonged to Moab, and was given by Moses to Reuben, but again reverted to Edom. It is now called Boszra; and is described by Burckhardt as the largest town in the Haouran, including its ruins, though only inhabited by about twelve or fifteen families. It is situated in the open plain, two hours distant from Aare, and is at present the last inhabited place in the southeast extremity of the Haouran. It is of an oval shape, its greatest length being from east to west; and its circumference three quarters of an hour.

Expression: To be an oval shape, the width of the city of Boszra must be shorter across in distance than the greatest length of the city. The only information we have of its size is that its circumference (distance around the oval) was $\frac{3}{4}$ of an hour.

2. 1 Chronicles 9:34 These chief fathers of the Levites were chief throughout their generations; these dwelt at Jerusalem.

Application: Jerusalem. We have already seen the situation and extent of this ancient city, but the Jerusalem of sacred history is no more. After having been

successively destroyed by the Babylonians and Romans, and taken by the Saracens, Crusaders, and Turks, in the possession of the latter of whom it still continues, not a vestige remains of the capital of David and Solomon, not a monument of Jewish times is standing. The very course of the walls is changed, and the boundaries of the ancient city are become doubtful. The monks pretend to shew the sites of the sacred places; but they have not the slightest pretensions to even a probable identity with the real places. The Jerusalem that now is, however, called by the Arabs {El Kouds,} or "the holy city," is still a respectable, good-looking town, of an irregular shape: it is surrounded by high embattled walls, enclosing an area not exceeding two miles and a half, and occupying two small hills, having the valley of Jehoshaphat on the east, the valley of Siloam and Gehinnom on the south, and the valley of Rephaim on the west; and containing a population variously estimated at from 20,000 to 30,000 souls.

Expression: The original city was somewhat like the temple and was square in likeness. The square would be easy to reproduce to scale, however, the irregular shape of Jerusalem now would take many more measurements and calculations. Irregular shapes are always more difficult to measure.

Squares

1. Genesis 11:9 Therefore is the name of it called Babel; because the LORD did there confound the language of all the earth: and from thence did the LORD scatter them abroad upon the face of all the earth.

Application: Babel. The name means Confusion. The tower of Babel, Herodotus informs us, was a furlong or 660 feet, in length and breadth; and, according to Strabo, it rose to the same altitude. It was of a pyramidal form, consisting of eight square towers, gradually decreasing in breadth, with a winding ascent on the outside, so very broad as to allow horses and carriages to pass each other, and even to turn. This magnificent structure is so completely destroyed that its very site is doubtful; and when supposed to be discovered, in all cases exhibiting a heap of rubbish.

Expression: Being the same distance long in length and breadth make an object a square. Also, when the height is the same length as the length and breadth, the object might be a cube. However, in the case of the Tower of Babel it was as high at one point -- square. To determine how much of the square was the same height as the length, we must employ additional math. Looking from the top of the square tower (an aerial viewpoint), we would see eight squares that made up the total area of the tower. Assuming that the centermost of the eight towers was 44 feet long and 44 feet wide, and each tower was around each side and out 44 feet, what was the length/breadth of each tower from the center tower on out?

Formula: original tower length times two + the length of the tower inside of it for each tower length

2nd tower: $44 \text{ feet} \times 2 = 88 \text{ feet} + 44 \text{ feet} = 132 \text{ feet}$

3rd tower: $44 \text{ feet} \times 2 = 88 \text{ feet} + 132 \text{ feet} = 220 \text{ feet}$

4th tower: $44 \text{ feet} \times 2 = 88 \text{ feet} + 220 \text{ feet} = 308 \text{ feet}$

5th tower: $44 \text{ feet} \times 2 = 88 \text{ feet} + 308 \text{ feet} = 396 \text{ feet}$

6th tower: $44 \text{ feet} \times 2 = 88 \text{ feet} + 396 \text{ feet} = 484 \text{ feet}$

7th tower: $44 \text{ feet} \times 2 = 88 \text{ feet} + 484 \text{ feet} = 572 \text{ feet}$

8th tower: $44 \text{ feet} \times 2 = 88 \text{ feet} + 572 \text{ feet} = 660 \text{ feet}$

2. Exodus 38:1 And he made the altar of burnt offering of shittim wood: five cubits was the length thereof, and five cubits the breadth thereof; it was foursquare; and three cubits the height thereof.

Application: The altar of burnt offering. This altar consisted of four boards of acacia wood, covered with brass, and hollow in the middle; but it is supposed to have been filled up with earth when used, for it is expressly said (Exodus 20:24) that the altar is to be of earth. As it was five cubits long and five cubits broad, and three cubits high, if the cubit be reckoned at 21 inches, it must have been eight feet nine inches square, and about five feet three inches in height.

3. Numbers 2:28 And his host, and those that were numbered of them, were forty and one thousand and five hundred.

Application: A specific space was prescribed to the soldiers of each of the tribes of Israel, whilst remaining close to each other in their ranks, allowing one square cubit to each.

Expression: Considering that these soldiers numbered 41,500, we can determine how many square feet of land they required. This is because, we also know that each of the soldiers were allowed one square cubit. First we must convert one square cubit into square feet. One square cubit is 2.25 square feet, that is, 1.5 feet times 1.5 feet. Then we multiply 2.25 square feet by 41,500 soldiers and we get 93,375 square feet of land.

Formula: 1 cubit = ? feet. length x width = square. One square foot x number of soldiers = ? square feet of land

or: 1 cubit = 1.5 feet. $1.5 \times 1.5 = 2.25$ square feet. 2.25 square feet x 41,500 soldiers = 93,375 square feet of land

4. Isaiah 13:19 And Babylon, the glory of kingdoms, the beauty of the Chaldees' excellency, shall be as when God overthrew Sodom and Gomorrah.

Application: It behooves us to take a look of the significance of the square in the magnificence of the ancient city of Babylon.

Babylon. A city whose destruction and utter ruin are here predicted, was situated in the midst of a large plain, having a very deep and fruitful

soil, on the Euphrates, about 252 miles south-east of Palmyra, and the same distance north-west of Susa and the Persian gulf, in lat. 32 degrees 30' N. and long. 44 degrees 20' E. According to Herodotus, it formed a perfect square, each side of which was 120 stadia, and consequently its circumference 480 stadia, or sixty miles; enclosed by a wall 200 cubits high, and fifty wide, on the top of which were small watch towers of one story high, leaving a space between them, through which a chariot and four might pass and turn. On each side were twenty-five gates of solid brass; from each of which proceeded a street, 150 feet broad, making in all fifty streets; which, crossing each other at right angles, intersected the city into 676 squares, extending four stadia and a half on each side, along which stood the houses, all built three or four stories high, and highly decorated towards the street; the interior of these squares being employed as gardens, pleasure grounds, etc. Its principal ornaments were the temple of Belus, having a tower of eight stories, upon a base of a quarter of a mile square; a most magnificent palace; and the famous hanging gardens, or artificial mountains raised upon arches, and planted with large and beautiful trees.

5. Jeremiah 46:19 O thou daughter dwelling in Egypt, furnish thyself to go into captivity: for Noph shall be waste and desolate without an inhabitant.

Application: Noph, or Moph, is the celebrated city of Memphis, as the Chaldee and LXX. render; long the residence of the ancient Egyptian kings, and situated fifteen miles above where the Delta begins, on the western side of the Nile. It was in the neighborhood of Memphis that the famous pyramids were erected, whose grandeur and beauty still astonish the modern traveler: they are about twenty in number; the largest of which is 481 feet perpendicular height, and the area of its basis is on 480,249 square feet, or something more than eleven acres, being exactly the size of Lincoln's Inn Fields in London.

Expression: It is possible to determine how long and wide base of the great pyramids are. We have the square feet measurement to go from.

The square root of a number, n , written

\sqrt{n} is the number that gives n when multiplied by itself. For example,
 $\sqrt{100} = 10$ because $10 \times 10 = 100$

Examples

Here are the square roots of all the perfect squares from 1 to 100.

$$\begin{aligned} \sqrt{1} &= 1 \text{ since } 1^2 = 1 \\ \sqrt{4} &= 2 \text{ since } 2^2 = 4 \\ \sqrt{9} &= 3 \text{ since } 3^2 = 9 \\ \sqrt{16} &= 4 \text{ since } 4^2 = 16 \\ \sqrt{25} &= 5 \text{ since } 5^2 = 25 \\ \sqrt{36} &= 6 \text{ since } 6^2 = 36 \\ \sqrt{49} &= 7 \text{ since } 7^2 = 49 \\ \sqrt{64} &= 8 \text{ since } 8^2 = 64 \\ \sqrt{81} &= 9 \text{ since } 9^2 = 81 \\ \sqrt{100} &= 10 \text{ since } 10^2 = 100 \end{aligned}$$

Finding square roots of numbers that aren't perfect squares without a calculator

1. Estimate - first, get as close as you can by finding two perfect square roots your number is between.
2. Divide - divide your number by one of those square roots.
3. Average - take the average of the result of step 2 and the root.
4. Use the result of step 3 to repeat steps 2 and 3 until you have a number that is accurate enough for you.

Example: Calculate the square root of 10 ($\sqrt{10}$) to 2 decimal places.

1. Find the two perfect square numbers it lies between.

Solution:

$3^2 = 9$ and $4^2 = 16$, so $\sqrt{10}$ lies between 3 and 4.

2. Divide 10 by 3. $10/3 = 3.33$ (you can round off your answer)

3. Average 3.33 and 3. $(3.33 + 3)/2 = 3.1667$

Repeat step 2: $10/3.1667 = 3.1579$

Repeat step 3: Average 3.1579 and 3.1667. $(3.1579 + 3.1667)/2 = 3.1623$

Try the answer --> Is 3.1623 squared equal to 10? $3.1623 \times 3.1623 = 10.0001$

If this is accurate enough for you, you can stop! Otherwise, you can repeat steps 2 and 3.

Note: There are a number of ways to calculate square roots without a calculator. This is only one of them.

Expression: Our square number is 480,249. This may seem like a huge number to find the square of, but don't let it scare you. Often the square root of a number is half the digits in length. Since our large number has six digits, we will use a root that has three digits. We will concentrate on the root of "48." So the question is, What number times itself equals 48?" $6 \times 6 = 36$ (too small) and $7 \times 7 = 49$ (almost, but too large). Now we know that the square root will be 6.? to equal 48. Since it was closer to 7 than to 6, we might try 6.9. Since we are actually looking for a match close to 480,249, let's try 690 times itself. $690 \times 690 = 476,100$. We are low, so let's go higher. $695 \times 695 = 483,025$ (too high). $693 \times 693 = 480,249$ (bingo!) Now we know the length and the width of the base of the great pyramid is 693 feet.

How were we able to come up with an exact number for a square root?
Whenever there is a square, there is a square root.

6. Ezekiel 40:10 And the little chambers of the gate eastward were three on this side, and three on that side; they three were of one measure: and the posts had one measure on this side and on that side.

Application: "...they three." The entrance into the outer court seems to have been through a porch with doors at both ends; and on each side of this porch were three small chambers, or rooms, for the use of the porters, a reed square in size, with a passage of five cubits between them. The common cubit, termed the "cubit of a man," (Deut 3:11,) was about 18 inches; but the cubit used by the angel was, as we learn from Ezekiel 43:13, "a cubit and a hand breadth" (the width of a palm) or about three inches more than the common cubit, that is 21 inches. Hence the measuring reed, which was "six cubits long, by the cubit and the hand breadth," (verse 5,) must have been about 10½ feet (approximately).

Expression: To determine what a "reed square in size" was, we first have to determine what a "reed" was in measure. A "reed" was known to be six cubits, each cubit measuring 1.5 feet.

Formula: Six times 1.5 feet equals length of one reed in feet

or: $6 \times 1.5 \text{ feet} = 9 \text{ feet}$ (each cubit for an angel was said to add a "hand breadth" or 3 inches, which makes $6 \times 3 \text{ inches}$, which would be one cubit more than man's. Therefore man's measure of 9 feet width and breadth would be 10 feet length and breadth when measured by angels).

7. Ezekiel 42:16 He measured the east side with the measuring reed, five hundred reeds, with the measuring reed round about.

Application: Here is something very interesting. God measures His temple to come, a Spiritual temple, and to do this uses the measure of an angel. This temple is different in size to the other previous temples, for a people much greater in number than the Israelites.

In the Hebrew, we read "with the measuring reed." Estimating the reed at 10 feet, 500 reeds will be nearly equal to a mile (5280 feet); so that from this statement we find the temple, with its outbuildings, was built on a square, nearly an English mile on each side, and four miles in circumference. This not only far exceeds the size of Solomon's temple, or that after the captivity, which was only 500 cubits (750 feet), or a furlong (660 feet), on each side, and exactly half a mile in circuit (2640 feet); but is nearly equal to the whole extent of Jerusalem itself, which, when greatest, was but 33 furlongs in circumference, somewhat less than 4 miles. This seems clearly to intimate, that the vision cannot be explained of any temple that has hitherto been built, or indeed of any literal temple, but figuratively and mystically of the spiritual temple, the Christian Church under the gospel, and its spiritual glory.

8. Matthew 26:36 Then cometh Jesus with them unto a place called Gethsemane, and saith unto the disciples, Sit ye here, while I go and pray yonder.

Application: Gethsemane. Gethsemane was a garden at the foot of the Mount of Olives, beyond the brook Cedron; an even plat of ground, says Maundrell, not above fifty-seven yards square, where are shown some old olive trees, supposed to identify the spot to which our Lord was wont to resort.

Expression: Since we know by this verse how many square yards in size the Garden of Gethsemane was, we can learn how large the garden was in feet by converting to square feet and then finding the square root. Since the Garden was a square, the root will be the width and the breadth.

Formula: 57 square yards times x 3 feet to a yard equals ? square feet. The square root of ? square feet is length and width of the garden.

or: 57 sq yds x 3 feet = 171 sq feet. Square root of 171 feet = 13.076696 (This is the length and width of the Garden of Gethsemane).

Circles

“It is he that sitteth upon the circle of the earth, and the inhabitants thereof are as grasshoppers; that stretcheth out the heavens as a curtain, and spreadeth them out as a tent to dwell in” (Isaiah 40:22).

“When he prepared the heavens, I was there: when he set a compass upon the face of the depth” (Proverbs 8:27).

1. Genesis 31:46 And Jacob said unto his brethren, Gather stones; and they took stones, and made an heap: and they did eat there upon the heap.

Application: An heap. The word {gal,} rendered "heap," properly signifies a round heap or circle; probably like the ancient remains in this country, which have been traced in India, Persia, Western Asia, Greece, and Northern Europe. These usually consist of irregular circles of large stones, with a principal one in the midst; the former probably being used for seats, and the latter for an altar; corresponding to the stone set up as a pillar by Jacob, and the heap of stones collected by his brethren. They appear to have been used, as Gilgal undoubtedly was, (Jos 4:5; Jud 2:1; 3:19; ch. 20. 1 Sa 7:16; 10:8, 17; 11:15; 13:7; 15:33. 2 Sa 19:15, 40. 2 Ki 2:1.) as temples, and as places for holding councils, and assembling the people.

2. Ezra 6:2 And there was found at Achmetha, in the palace that is in the province of the Medes, a roll, and therein was a record thus written.

Application: At Achmetha. or, at Ecbatana. The building of the city is ascribed to Semiramis by Diodorus, but to Deioeces by Eusebius, (in Chron. 1.1.) and Herodotus, who states that it was surrounded by seven walls, strong and ample, built in circles one within another, rising each above each by

the height of their respective battlements; each being distinguished by a different color, the first white, the second black, the third purple, the fourth blue, the fifth orange, the sixth plated with silver, and the seventh with gold. The largest of these was nearly the extent of Athens, i.e., 200 furlongs, according to Dion Chrysostom; but Diodorus Siculus states the circumference of Ecbatana to be 250 furlongs. Within the inner circle stood the king's palace and the royal treasury.

Expression: If we know that Ecbatana had a circumference of 250 furlongs, we could determine the distance across the city through the middle. If the king's palace stood in the center of the inner circle, then we can determine how many feet from the outer wall the center of the king's castle was. To find the diameter (the distance half way through the circle around Ecbatana) of a circle is as easy as pi. PI is the approximate number 3.14159265358979323846. For simplification, we can use 3.14. The following is the formula for figuring the radius when you know the circumference of a circle. A furlong is 660 feet.

Formula: $250 \text{ furlongs} \times 660 \text{ feet} = 165,000 \text{ feet circumference}$.
 $165,000 \text{ feet} / 3.14 \text{ (PI)} = \text{a radius of } 52,5477.77 \text{ feet to the center of the castle from the outer-most wall. Two times the radius or } 1,050,995.5 \text{ feet is the diameter or the distance across the city of Ecbatana through the middle of the circle.}$

Equalities and Inequalities

Some things are found to be equal in size or quantity and others are not. When they are the same, they are equal. When they are different, they are comparatively unequal.

Equalities

1. Genesis 6:19 And of every living thing of all flesh, two of every sort shalt thou bring into the ark, to keep them alive with thee; they shall be male and female.

Application: The cubit being nearly 22 inches, and the ark being 300 cubits in length, 50 in breadth, and 30 in height, (verse 15,) its size was equal to 547 feet long, 91 feet broad, and 54 feet high; and it is computed to have been 81,062 tons burthen. These dimensions were sufficient to contain all the persons and animals in it, and food for more than a year.

Expression: Actually, when you use the 22-inch per cubit scenario, the application above is not true. We see this when we do a conversion to feet. 22 times 300 divided by 12 is equals to (=) 550 feet which is > (greater than and not equal to (=) 547 feet. Had we used a 21.88-cubit scenario, then we would be able to say that it was equal to (=) 547 feet. 21.88 cubits = 547 feet, which is how long the ark measured.

Formula: The formulas to have equal measurement for the two other dimensions:
 $(n \text{ cubits} \times 50) / 12 = 91 \text{ feet}$

$$(n \text{ cubits} \times 30) / 12 = 54 \text{ feet}$$

2. Numbers 7:17 And for a sacrifice of peace offerings, two oxen, five rams, five he goats, five lambs of the first year: this was the offering of Nahshon the son of Amminadab.

Application: Of the twelve tribes of Israel, every tribe offers the same kind of offering, and in the same quantity, to shew, that as every tribe was equally indebted to God for its support, so each should testify an equal sense of obligation.

Expression: The tribe of Judah' offering = the tribe of Nahshon's offering
The tribe of Issachar's offering = the tribe of Nathaneel's
and so on....

3. Numbers 26:56 According to the lot shall the possession thereof be divided between many and few.

Application: This equal division of property was, under God, the great bulwark and strength of the Hebrew commonwealth. According to the most exact calculations, Canaan contained 14,976,000 acres; which, divided among 600,000 men, will allow of more than 21 acres and a half to each, with a remainder of 1,976,000 acres for the princes of tribes, Levitical cities, etc.: so that there was an ample provision to enable each person, with all the advantages of that fertile country and fine climate, to live, if not in affluent, yet in very comfortable circumstances.

Expression: Each tribe received an equal share of the land. There were 600,000 men that equally divided 14,976,000 acres. To find out the exact equal share each man received, we must divide 14,976,000 by 600,000. This amount would be the exact measure and would represent the true equal share. 21 acres is not an equal share of the amount of acreage stated above.

Formula: $a \text{ (available acres)} / m \text{ (men)} = \text{equal share of the land}$
 $14,976,000 / 600,000 = 24.96 \text{ acres each man}$

4. Numbers 31:32 And the booty, being the rest of the prey, which the men of war had caught, was six hundred thousand and seventy thousand and five thousand sheep.

Application: The booty. It appears from the enumeration here, that the Israelites, in this war with the Midianites, took 32,000 female prisoners, 61,000 asses, 72,000 beeves, and 675,000 sheep and small cattle; besides the immense number of males who fell in battle, and the women and children who were slain by the divine command. (ver. 17.) This booty was divided into equal parts, by which partition a far larger share was justly given to the warriors employed on the expedition, who were only 12,000, than to those, who being equally willing to go, were ordered to

stay in the camp. Each party was to give a certain proportion to Jehovah, as their sovereign, in grateful acknowledgement that to him they owed their success. The soldiers to give to the Lord one out of every five hundred persons, beeves, asses, and sheep, (ver. 28,) and the people, who by staying at home risked nothing, and had no fatigue, were to give one out of fifty of each of the above to the Levites, who were far more numerous than the priests. (ver. 30.) The booty, its division among the soldiers and people, and the proportion given by each to the Lord and to the Levites, will be seen at one view by the following table:—

Sheep 675,000
 To soldiers . . . 337,500
 To God. 675
 To people 337,500
 To Levites. . . . 6,750

Beeves. . . . 72,000
 To soldiers . . . 36,000
 To God. 72
 To people 36,000
 To Levites. . . . 720

Asses 61,000
 To soldiers . . . 30,500
 To God. 61
 To people 30,500
 To Levites. . . . 610

Persons 32,000
 To soldiers . . . 16,000
 To God. 32
 To people 16,000
 To Levites. . . . 320

It does not appear that a single ox, sheep, or ass, was required by Moses as his portion; or that there was any given to him by the people; and though he had a family as well as others, yet no provision was made for them above the common lot of Levites!

Expression: The equality of the division of the booty is apparent as you examine the numbers of the divisions as percentages, for example:

The Soldiers received 50% of the Sheep
 50% of the Beeves
 50% of the Asses
 50% of the Persons
 Set aside for God was 1000th % of Sheep
 1000th % of Beeves
 1000th % of Asses
 1000th % of Persons

The people received	50% of Sheep
	50% of Beeves
	50% of Asses
	50% of Persons
The Levites received	100 th % of Sheep
	100 th % of Beeves
	100 th % of Asses
	100 th % of Persons

Inequalities

1. Leviticus 13:39 Then the priest shall look: and, behold, if the bright spots in the skin of their flesh be darkish white; it is a freckled spot that groweth in the skin; he is clean.

Application: A freckled spot. The word {bohak,} from the Syriac {behak,} to be white, or shining, here rendered "a freckled spot," is used by the Arabs to denote a kind of leprosy, of which Niebuhr says, "{Bohak} is neither contagious nor dangerous. A black boy at Mocha, who was affected with this eruption, had here and there upon his body white spots. We were told that the use of sulphur had relieved this boy for a time, but had not entirely removed the disease." He adds subsequently from Forskal's papers, "The Arabs call a sort of leprosy, in which some little spots shew themselves here and there on the body, and it is without doubt the same as is named {bohak}. They believe it to be so far from contagious, that one may sleep with a person affected without danger." "On the 15th day of May, 1765, I myself first saw the {Bohak} leprosy in a Jew at Mocha. *The spots in this disease are of an unequal size.* They do not shine; are not perceptibly higher than the skin; and do not change the color of the hair. Their color is an obscure white, inclining to red. The rest of the skin of the patient was darker than that of the people of the country in general; but the spots were not so white as the skin of an European, when not sunburnt. The spots in this leprosy do not appear on the hands, or near the navel, but on the neck and face, yet not on that part where the hair grows thick. They gradually spread, and continue sometimes only about two months, but in some cases one or two years, and then disappear by degrees, of themselves. This disorder is neither contagious nor hereditary, nor does it occasion any inconvenience." Hence a person infected with the {bohak} is declared clean.

Expression: The fact that the spots are of unequal size indicates that some were in fact larger and some were smaller than the others. Another way to express this is to say that one spot was < (less than) one next to it or that one spot was > (greater than) one next to it. These are some common expressions used for inequalities in arithmetic.

2. Judges 20:13 Now therefore deliver us the men, the children of Belial, which are in Gibeah, that we may put them to death, and put away evil from Israel. But the children of Benjamin would not hearken to the voice of their brethren the children of Israel.

Application: The conduct of the Israelites was very equitable in this demand; but perhaps the rulers or elders of Gibeah ought previously to have been applied to, to deliver up the criminals to justice. However, the refusal of the Benjaminites, and their protection of those who had committed this horrible wickedness, because they were of their own tribe, proves them to have been deeply corrupted, and (all their advantages considered) as ripe for divine vengeance as the inhabitants of Sodom and Gomorrah had been. Confiding in their own valor and military skill, they seem to have first prepared for battle in this unequal contest with such superior numbers.

Expression: The number of the Israelites, compared to the tribe of Benjamin was greater in number. You can express this by stating that the number of people in the other tribes was > (greater than) those in the tribe of Benjamin.

3. Jeremiah 10:1 Hear ye the word which the LORD speaketh unto you, O house of Israel

Application: The unequal comparison of God and idols. Verse 17 The prophet exhorts to flee from the calamity to come. Verse 19 He laments the spoil of the tabernacle by foolish pastors. Verse 23 He makes an humble supplication.

Expression: God obviously speaks to the House of Israel and lets them know that no God is > (greater than) Him.

4. Matthew 23:23 Woe unto you, scribes and Pharisees, hypocrites! for ye pay tithe of mint and anise and cummin, and have omitted the weightier matters of the law, judgment, mercy, and faith: these ought ye to have done, and not to leave the other undone.

Application: Cummin. Gr. Cummin is a plant of the same class as dill: it rises eight or ten inches on a slender round procumbent, branching stem; leaves, a dark green, narrow, linear, and pointed; flowers, purple, in numerous four rayed umbels; corolla, five unequal petals, inflected, and notched at the apex; seeds, oblong, striated, of a brown color, strong, heavy odor, and warm, bitterish taste.

Expression: The pedals of the cumin plant are unequal one pedal is < (less than) or > (greater than) the other in size.