

Maths Home Learning Task

Year 9

Foundation 2

Name

Tutor Group

Teacher

Given out: Monday 9 December Hand in: Monday 16 December

Parent/Carer Comment

Staff Comment

ATL

Target

Reading Task

Money and Measurement - Babylonian Mathematics

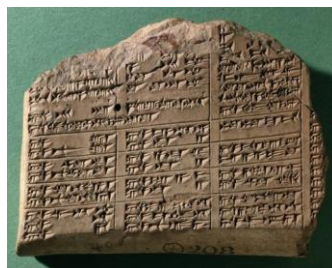
Mesopotamia, which means "The Land between the Two Rivers," was located one thousand miles east of the delta of the Nile River in between the Tigris and Euphrates Rivers. The Babylonian civilization flourished at about the same time as the Egyptian civilization. The Babylonians lived in a large desert, and they had a legal system, a postal system, and irrigation systems. The environmental differences between Mesopotamia and Egypt led the Babylonians to develop different areas in mathematics.

Mesopotamia engaged in a great deal of foreign trade because they had no wood or metal in their environment. They were constantly travelling in caravans of donkeys or camels, or on ships. Merchants travelled far to obtain goods. They went west to Lebanon for wood, north into Asia for precious metals, and east into India for silks and spices. These merchants needed a precise way of measuring things because these goods were rare and expensive.

The merchants developed scales and standard weights to replace the previous system of measuring things by donkey load. Heavy items were weighed in talents, and a talent was approximately 35 pounds. Precious things, like spices, were weighed in shekels, and a shekel was a little less than one third of an ounce. All of this trade and commerce also led to the development of money for the first time.

Almost all ancient peoples accepted barley as payment for goods because it was something everyone needed. Most workers received their pay checks in barley, and they used it to make their beer and their bread. They used whatever was left for trading. Babylonian merchants found that it was cumbersome to travel with camels and donkeys weighed down with barley, so they began to use silver as a way to pay for goods. They carried small amounts of silver with them and weighed it out whenever they wanted to buy something. They eventually made silver bars with the weight stamped on them, which was the world's first money. Silver was easy to carry and it never went bad!

Even though the Babylonians discovered a way to make trading easier by inventing money, they still had an inefficient accounting system. They used soft, clay tablets and wrote with pointed sticks in wedge-shaped symbols called cuneiform. Many symbols looked alike, so it was difficult to read. Their system of numbers had a base of 60, like the Sumerians, and they did not have a symbol for zero. In spite of a clumsy system, the Babylonians kept track of bills, receipts, and contracts. They even had tables to help them with their calculations. Archaeologists discovered thousands of clay tablets from a temple library near the banks of the Euphrates River that show tables of multiplication, addition, and the squares of numbers.



Babylonians often had just sun-baked bricks for building. They discovered that if they made two piles of bricks and joined them with a wedge-shaped brick in the centre, the wedge-shaped brick acted as a force to hold up the entire structure. This central brick was called the keystone in the arch. By building interlocking arches, the Babylonians then invented the dome. The arch and the dome became significant in all Near Eastern architecture, and became the basis for the aqueducts, bridges, and domes of the Roman Empire centuries later.

Statistical measures

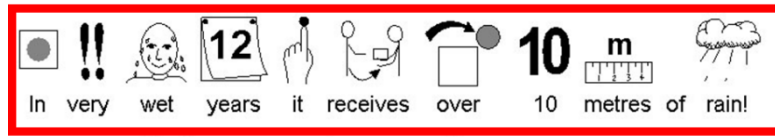
- 1 Find the mode of each set of data.
a 4 5 6 6 7 8 The mode is
- b** 11 13 17 13 13 9 The mode is
- 2 Find the median of each set of data.
a 3 5 7 10 11 The median is
- b** 1 7 3 4 8 10 2 The median is
- 3 Find the range of each set of data.
a 6 1 9 5 8 13 The range is
- b** 2 10 16 11 35 7 The range is
- 4 Find the mean of each set of data.
a 6 4 7 8 5 The mean is
- b** 14 23 9 10 6 4 The mean is

- 5 A five-sided spinner is spun 100 times.
The frequency distribution shows the scores.

Score (x)	Frequency (f)	Frequency \times score (fx)	Running total
1	21		
2	15		
3	22		
4	23		
5	19		

- a** Complete the table.
- b** Find the mean score.
- c** Find the median score

Working with symbols



Simplify the following and leave in the correct algebraic form:

a) $b \times a =$

b) $y \times y \times y =$

c) $d \times c \times 2 =$

Simplify the following:

a) $a + a + a + a =$

b) $2k + k + 5k =$

c) $5t - 3t + 4t - t =$

Substitute in to the following when $a = 5$ and $b = 2$

a) $a + b =$

b) $2a + b =$

c) $5a - 2b =$

d) $4a \div b =$

Simplify the following:

a) $4a + 3b - 2a =$

b) $9e - f - 2e - 3e =$

c) $3ab + 5gh - 4gh + 2ab =$

Substitute in to the following when $m = -3$ and $n = -5$

a) $m + n =$

b) $m - n =$

c) $m - 2n =$

d) $5m \div n =$

Expand the following:

a) $2(a + 3)$

b) $p(2p - 3)$

c) $2pq(p - 3q)$

Factorise the following:

a) $2a + 4$

b) $y^2 + y$

c) $5e + 20e^2$

Expand and simplify the following:

a) $4(a + 2) + 3(a + 3)$

b) $4(2r + 5) - 3(r - 2)$

c) $4(2c - d) - 7(c - 2d)$

Equations

1. a) A number times 2 is 14, what is the number?
b) A number added to 5 is 8, what is the number?
c) A number is equal to 5 minus 2, what is the number?

2 Solve these equations.

a $p + 8 = 17$

b $t - 9 = 3$

3 Solve these equations.

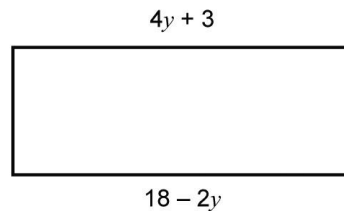
a $4x + 6 = 18$

b $6y - 5 = 37$

c $\frac{b}{2} = 7$

d $\frac{t}{7} = 0.2$

- 4 The opposite sides of a rectangle are equal.
Use this to write an equation in y for this rectangle.
Solve your equation to find the value of y .



5 Solve these equations.

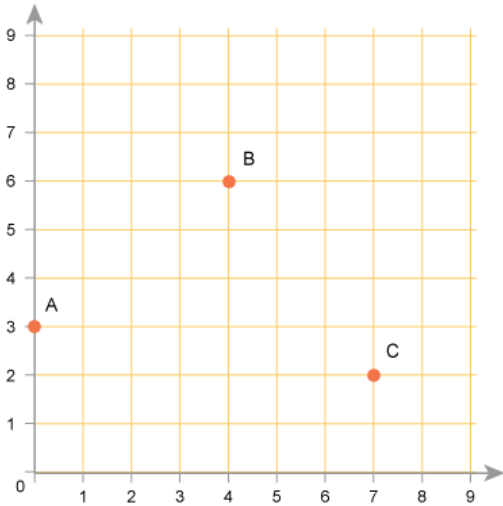
a $5(x + 2) = 3x + 7$

b $4y + 3 = 2(y - 3)$

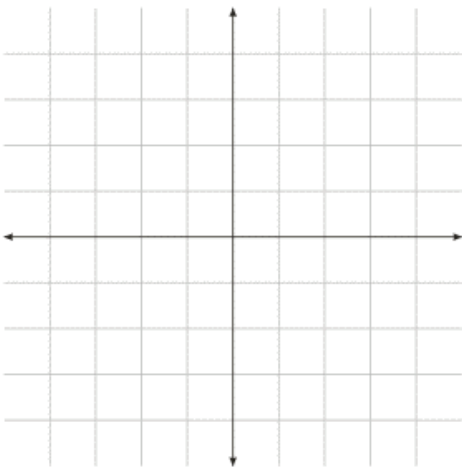


Coordinates

Plot the following coordinates D at (3 , 7) E at (5 , 2) F at (9 , 0)



Write down the coordinates of A (,) B (,) C (,) above



W is the mid-point of the line UV. U is the point (-3 , 0). V is the point (1 , 2)

What are the coordinates of W? W = (,)

Angles

1 How many degrees are there in:

a one-tenth of a turn

b one-eighth of a turn

2 State whether each of these angles is acute, obtuse or reflex.

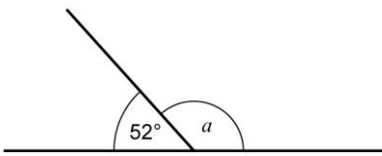
a 218°

b 72°

c 98°

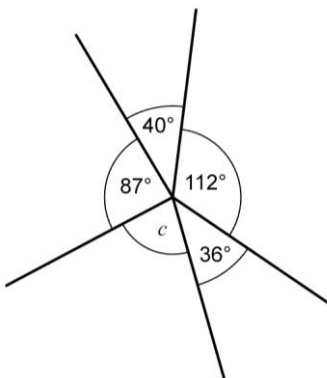
d 163°

3 Calculate the size of the angle marked with letters.
The diagrams are not drawn accurately.



Angle a =

4 Calculate the size of the angles marked with letters.
The diagrams are not drawn accurately.



Angle c =