



MATHS HOMEWORK = HELP

Algebra – Non-Calculator

1) If $a = 3$ and $b = 5$

a) Complete the table below

$b - a = 2$
$a = 3$
$b = 5$
$2 \times a = 6$
$= 8$
$= 10$
$= 15$
$= 4$

b) If $3 \times a = 12$

and $a + b = 10$

Find the values of a and b .

2) a) If $y = 2$, which expression below has the largest value?

Put a ring around it.

$$y + 3$$

$$y^2$$

$$9 - y$$

$$3y$$

$$y/2$$

b) If $y = 5$, which expression below has the largest value?

Put a ring around it.

$$y + 3$$

$$y^2$$

$$9 - y$$

$$3y$$

$$y/2$$

c) Write a number to make the sentence below true.

When $y =$ _____, the expression $y + 3$ has a larger value than the expression $9 - y$.

3) Complete the expression below.

When x is 6, $9x$ is _____.

When x is _____, $9x$ is 36.

When x is 6, _____ is 36.

4) Solve these equations.

$$4y - 3 = 17$$

y =

$$38 = 5k + 3$$

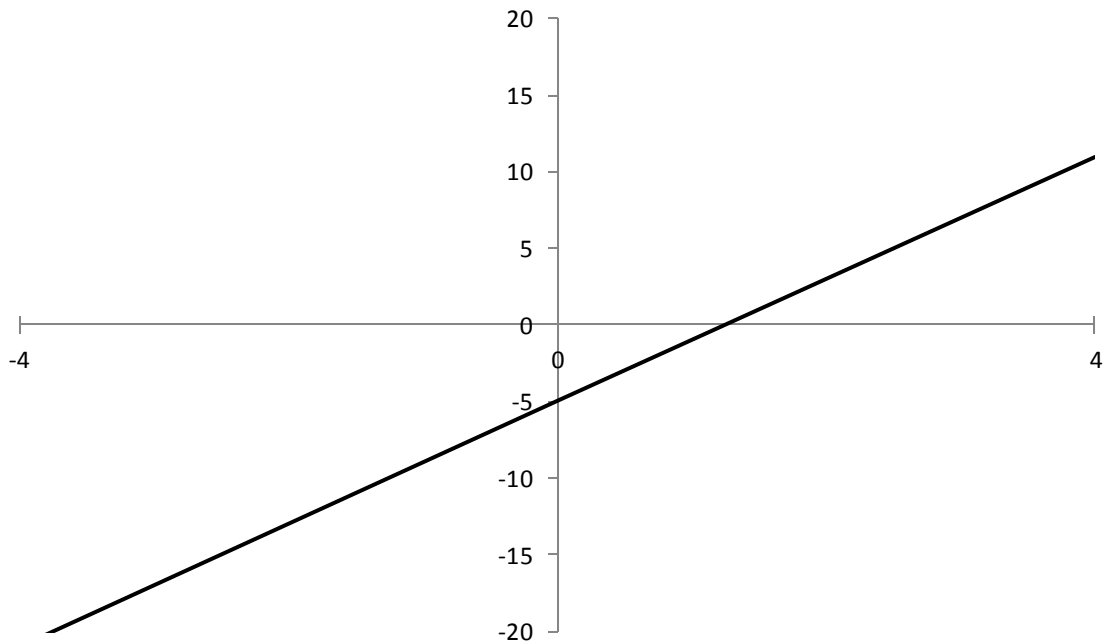
k =

5) Solve this equation

$$50 + 4t = 75 - t$$

t =

6) The graph shows the straight line with the equation $y = 4x - 5$



a) A point on the line $y = 4x - 5$ has an x-coordinate of 30.

What is the y-coordinate of this point?

b) A point on the line $y = 4x - 5$ has an y-coordinate of 75.

What is the x-coordinate of this point?

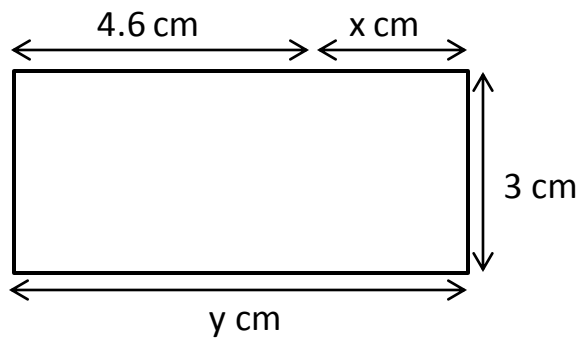
7) Look at these equations

$$13 = a + 9$$

$$a + 5 = 11 - b$$

Use both equations to work out the value of b.

8) Look at the rectangle



Not drawn
accurately

The total area of the rectangle is 27cm^2 .

Work out the lengths of x and y.

9) Solve these simultaneous equations using an algebraic method.

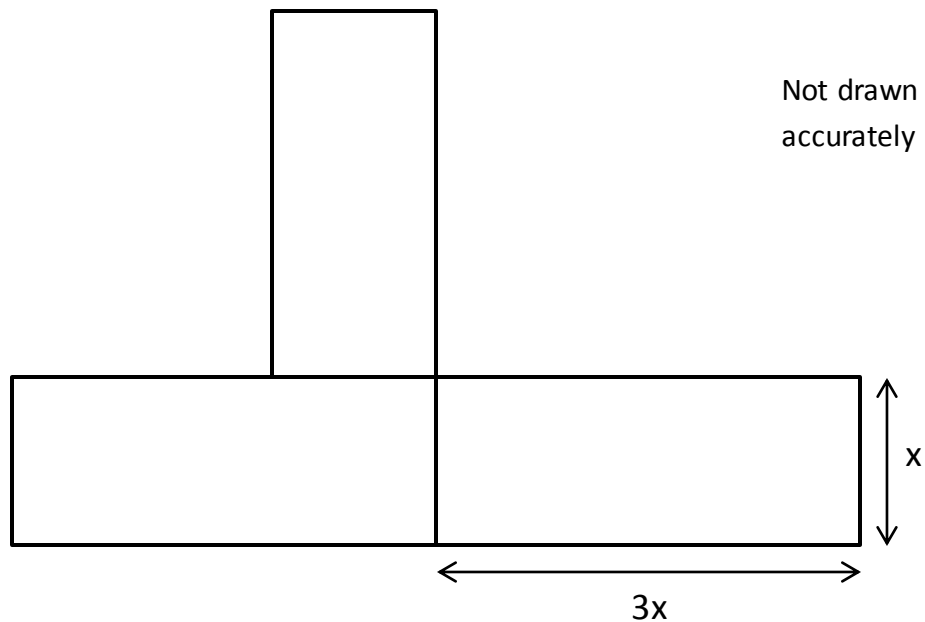
$$4x + 5y = 23$$

$$4x + 2y = 14$$

You must show your working.

10) This shape is made of three congruent rectangles.

Each rectangle has side lengths x and $3x$.



The perimeter of the shape is 100m.

Work out the area of the shape.



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Answers

1) If $a = 3$ and $b = 5$

a) Complete the table below

$b - a = 2$
$a = 3$
$b = 5$
$2 \times a = 6$
$a + b = 8$
$2 \times b = 10$
$a \times b = 15$
$(a + b)/2 = 4$

b) If $3 \times a = 12$

and $a + b = 10$

Find the values of a and b .

$a = 4, b = 6$

2) a) If $y = 2$, which expression below has the largest value?

Put a ring around it.

$y + 3$

$3y$

y^2

$y/2$

$9 - y$

b) If $y = 5$, which expression below has the largest value?

Put a ring around it.

$y + 3$

$3y$

y^2

$y/2$

$9 - y$

c) Write a number to make the sentence below true.

When $y =$ _____, the expression $y + 3$ has a larger value than the expression $9 - y$.

Any number where y is greater than 3.

3) Complete the expression below.

When x is 6, $9x$ is 54.

When x is 4, $9x$ is 36.

When x is 6, $6x$ is 36.

4) Solve these equations.

$$4y - 3 = 17$$

$$y = 5$$

$$38 = 5k + 3$$

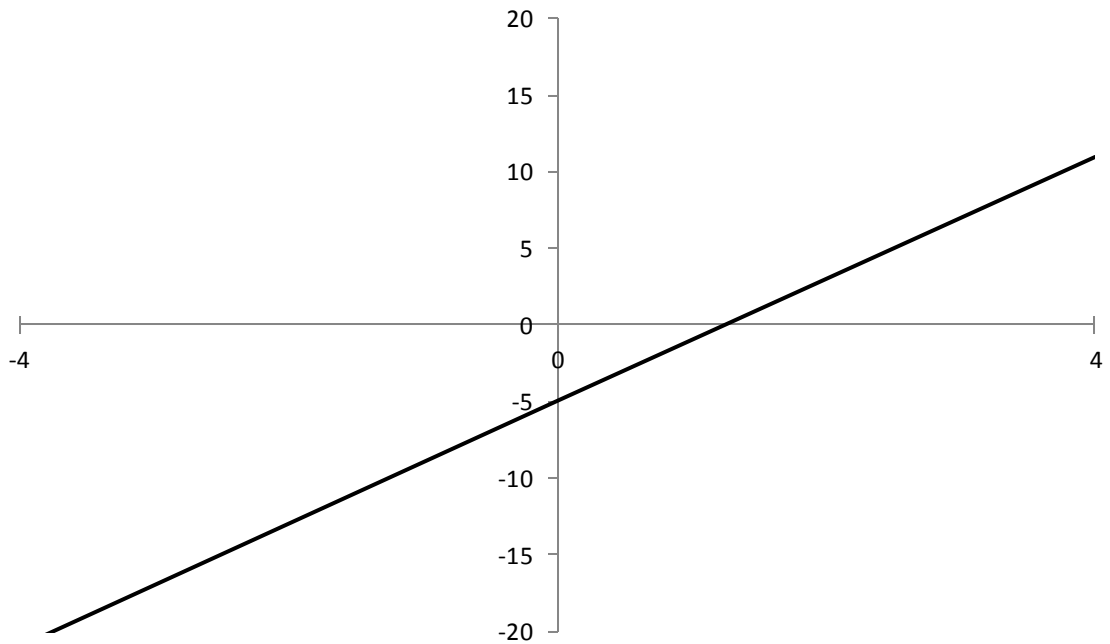
$$k = 7$$

5) Solve this equation

$$50 + 4t = 75 - t$$

$$t = 5$$

6) The graph shows the straight line with the equation $y = 4x - 5$



a) A point on the line $y = 4x - 5$ has an x-coordinate of 30.

What is the y-coordinate of this point?

$$y = 115$$

b) A point on the line $y = 4x - 5$ has a y-coordinate of 75.

What is the x-coordinate of this point?

$$x = 20$$

7) Look at these equations

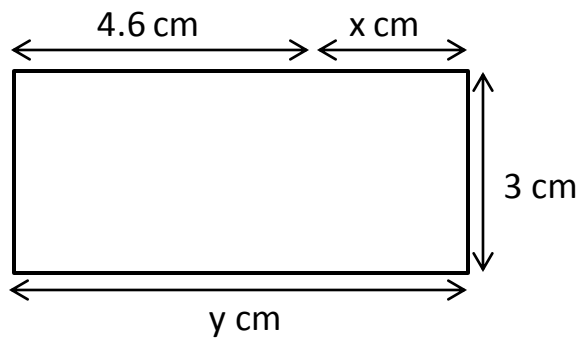
$$13 = a + 9$$

$$a + 5 = 11 - b$$

Use both equations to work out the value of b.

$$a = 4, b = 2$$

8) Look at the rectangle



Not drawn accurately

The total area of the rectangle is 27cm^2 .

Work out the lengths of x and y.

$$x = 4.4 \text{ cm}, y = 9 \text{ cm}$$

9) Solve these simultaneous equations using an algebraic method.

$$4x + 5y = 23$$

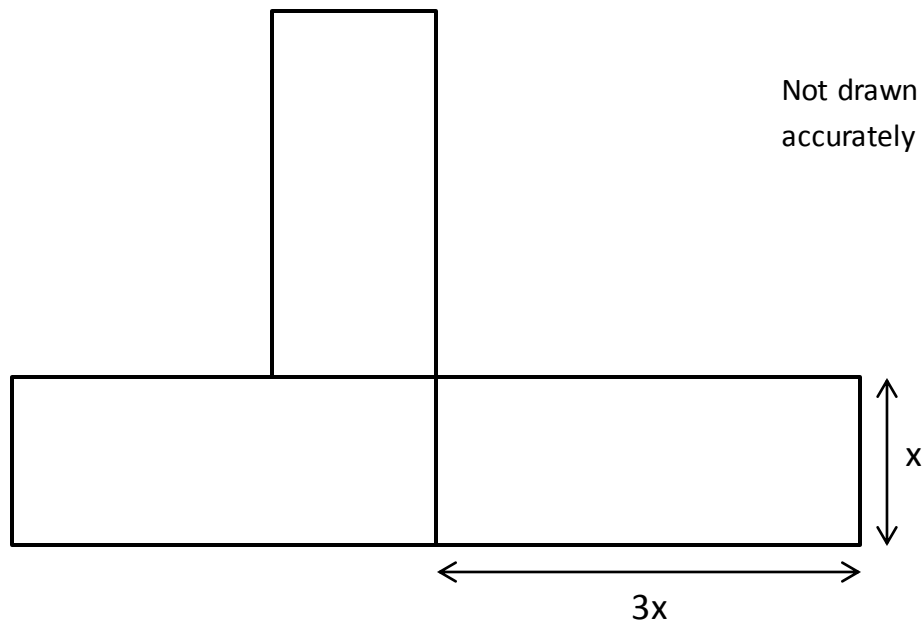
$$4x + 2y = 14$$

You must show your working.

$$x = 2, y = 3$$

10) This shape is made of three congruent rectangles.

Each rectangle has side lengths x and $3x$.



The perimeter of the shape is 100m.

Work out the area of the shape. 225m^2



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Tips and Techniques

1. Read each question slowly. You may find it helpful to underline the numbers and important information that will affect your answer.

For example: Find 23 more than 57?

2. If you do not understand the question straightaway, try reading it through a couple of times until it makes sense.

3. Make sure you read the question carefully. Often, the words highlighted in bold in the question will be the part you need to pay the most attention to, e.g. *Which country had the **greatest increase** in visitors from 2005 to 2006?*

4. Even if you know the answer to the question without working it out on paper, it is important to always show your working out in the box provided. You will lose marks if you do not do this.

5. Always use a ruler when drawing shapes, symmetry or graphs.

6. Topics that are useful to revise;

* **Time** - 24 hour clock, adding a length of time e.g. 45 minutes to a certain time. An example of a question where time is used is - "*The time is one thirty in the afternoon. Write this as it would be shown on a twenty-four hour clock?*"

* **Money** - find the total amount of shopping items, how much change will you get from a £5, £10 note etc.

* **Number calculations** - times tables, addition, subtraction, multiplication and division methods.

* **Measurement** - how many metres in a kilometre, millilitres in a litre and grams in a kilogram?

* **Percentages and fractions** - $1/2=0.5$ or 50%, $1/4=0.25$ or 25%, $3/4=0.75$ or 75%, $1/3=0.33$ or 33%, $1/5=0.2$ or 20%

7. Check to see how many marks the question is worth. If it is worth more than one mark, make sure you show your working out.

8. Use everyday objects to help your child practice certain topics. For example; a shopping receipt can be good revision for money questions - adding totals and finding change. Other useful objects that you could use are;

* **Television Guide** - Practice the time a programme starts, what time will it finish? how long does the programme last?

* **Weather Chart** - Change in temperature - e.g. *The temperature fell from 3 degrees celsius to -4 degrees celsius. By how many degrees did the temperature fall?*

* **Measure yourself and other family members to practice height** (in cm, metres), weight (in grams, kilograms), area of hands and feet. You could also calculate the average family height, weight etc.