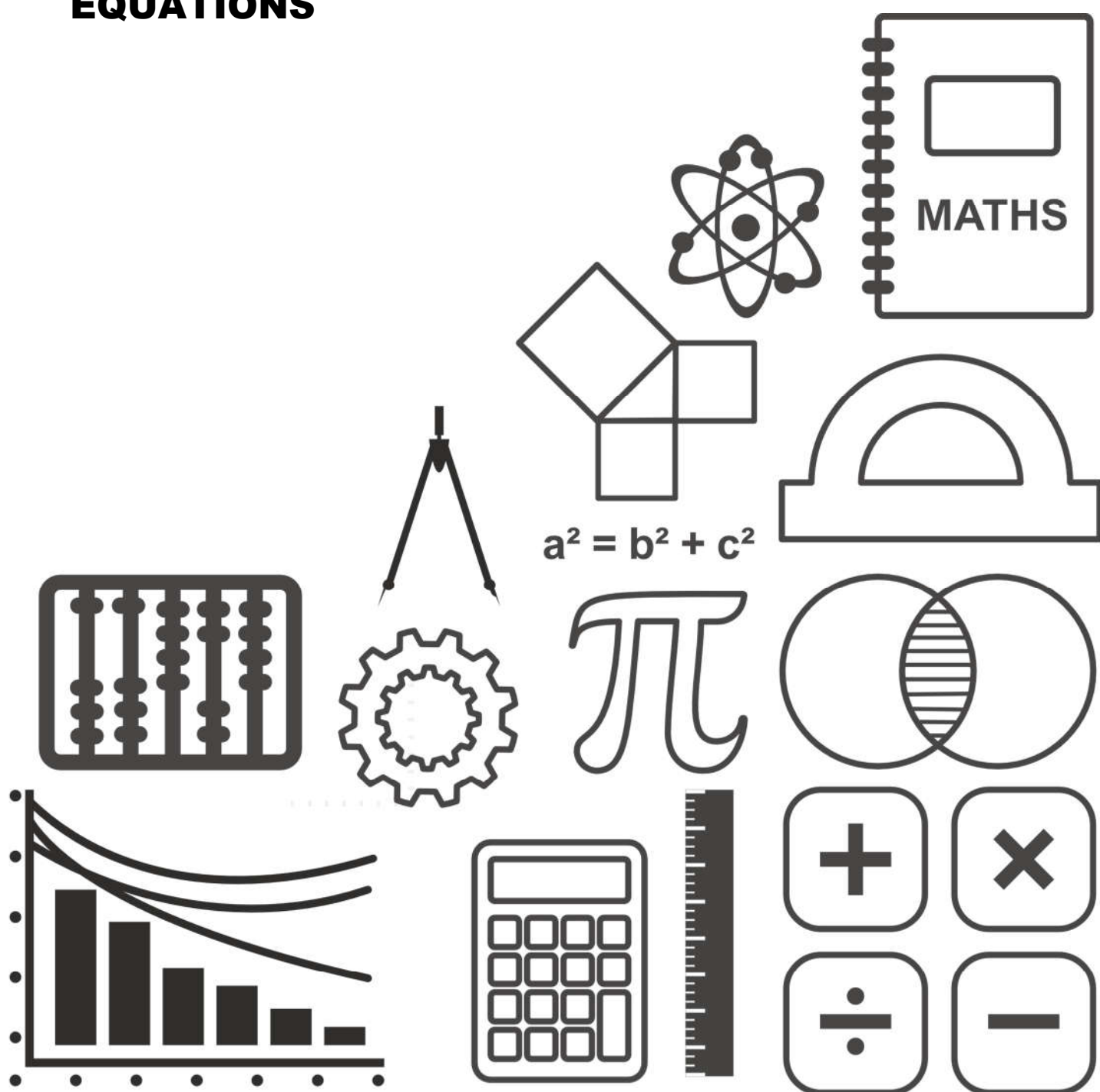


GCSE TOPIC BOOKLET EQUATIONS



1.

- (a) Draw a line from each of the following equations to its solution.
The first one is done for you.

[3]

$a - 5 = 6$	$a = 5$
$a - 2 = 6$	$a = 3$
$a + a = 2$	$a = 11$
$a - 3 = 0$	$a = 1$
	$a = 4$
	$a = 8$

- (b) Write down an equation that gives the solution $x = 10$.

[1]

.....

.....

- (c) Write down an equation that gives the solution $t = -4$.

[1]

.....

.....

2.

In the following table, the letters a , b , c and d represent different numbers.
The total for each row is given at the side of the table.
Find the values of a , b , c and d .

a	a	a	a	16
a	b	b	a	18
a	c	c	c	13
a	b	c	d	14

$a =$ $b =$ $c =$ $d =$ [4]

3.

Solve

(a) $x + 3 = 19$

 [1]

(b) $3x = 18$

 [1]

(c) $\frac{x}{7} = 8$

 [1]

(d) $3x + 5 = 17$

 [2]

4.

(a) Solve $x - 7 = 16$.

[1]

(b) Solve $5x = 20$.

[1]

(c) Solve $\frac{p}{8} = 9$.

[1]

(d) Solve $4a + 3 = 39$.

[2]

5.

(a) Solve $4x = 16$. [1]

(b) Solve $\frac{y}{5} = 4$. [1]

(c) Solve $5a - 8 = 17$. [2]

(d) Solve $\frac{20}{b} = 5$. [1]

(e) The cost of a cup of tea is the same as the cost of a cup of coffee.
Two cups of tea and three cups of coffee cost £8 in total.
Find the cost of one cup of tea. [3]

6.

Solve each of the following equations.

(a) $8 + x = 21$

.....

..... [1]

(b) $x - 3 = -7$

.....

..... [1]

(c) $8x = 32$

.....

..... [1]

(d) $2x - 5 = 9$

.....

..... [2]

7.

Jacob's teacher gives him the following homework task:

Write 2 equations that
have a solution of
 $x = 5$

Write 2 possible equations that Jacob could use in his homework.

[2]

Equation 1:

.....

.....

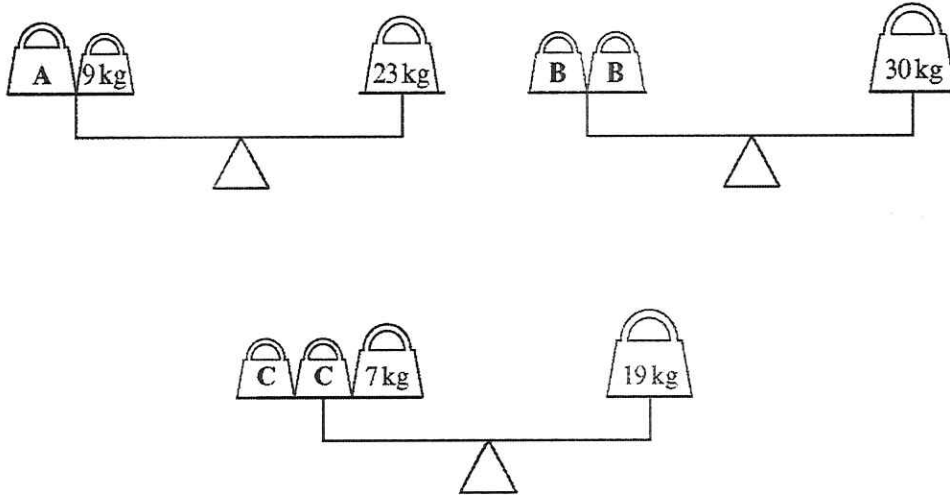
Equation 2:

.....

.....

8.

Each diagram represents a balance with the total weight on each side being equal.
Find the value of A, B and C.



.....

.....

.....

.....

.....

.....

.....

A = kg B = kg C = kg

[4]

9. (a) Solve $\frac{x}{7} = 7$. [1]

(b) Solve $5y - 6 = 49$. [2]

(c) (i) Find the values of x and y when $4x = 20$ and $x + y = 4$. [2]

(ii) Use your answers to find the value of $2x + 3y$. [2]

10. Solve $8x - 9 = 21 + 5x$. [3]

11.

Pria was given 3 equations to solve.

$$a + 9 = 2$$

$$3b = 240$$

$$c - 5 = -1$$

Solve the 3 equations for Pria.

[3]

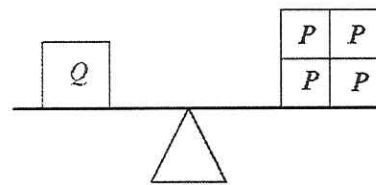
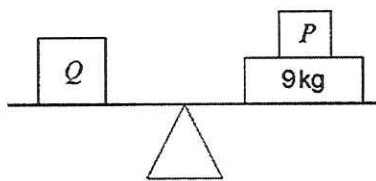
- $a + 9 = 2$

- $3b = 240$

- $c - 5 = -1$

12.

Packages P and Q balance as shown in the diagrams below.



Find the weight of package P and the weight of package Q .

[4]

13.

(a) Solve $a + 6 = 19$.

[1]

(b) Solve $6b = 42$.

[1]

14.

Megan and Ellis play a game called "I think of a number".

(a) Megan says

I think of a number.
When I add together 4 lots of
my number the answer is 28.

Set up an equation, using the information that Megan has given.
Use the letter n for the number that Megan thought of.
Solve your equation to find the value of n .

[2]

(b) Ellis says

I think of a number.
When I divide it by 6 the
answer is 12.

Set up an equation, using the information that Ellis has given.
Use the letter m for the number that Ellis thought of.
Solve your equation to find the value of m .

[2]

15.

Solve each of the following equations.

(a) $x - 4 = 3$

.....
 [1]

(b) $4x = 36$

.....
 [1]

(c) $5x - 4 = 31$

.....

 [2]

16.

Solve

(a) $6x + 7 = 4(x + 6)$

.....

 [3]

(b) $\frac{x}{5} + 4 = 13$

.....

 [2]

17.

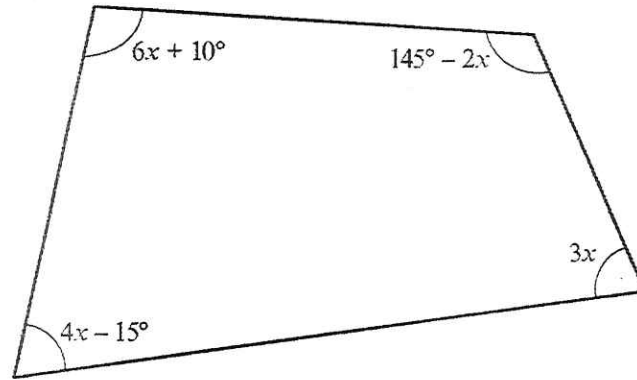


Diagram not drawn to scale

In this quadrilateral all the angles are measured in degrees.
Find the value of x which satisfies this diagram.
You must show all your working.

[4]

18.

Solve the equation $8a + 7 = 2a + 34$.

[3]

19.

Solve $3(2x - 7) = 2x + 9$.

[3]

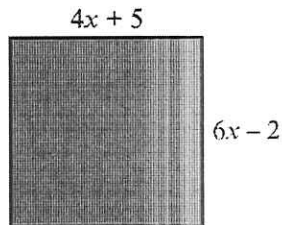
20.

Solve the equation $3(x - 2) = x + 2$.

[3]

21.

The diagram shows a square.



Find the length of the side of the square.

[5]