



Exampro Lite GCSE Maths

Simultaneous Equations

Markscheme at back

Name:

Class:

Author:

Date:

Time:

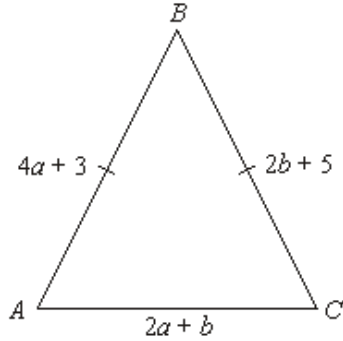
Marks:

51

Comments:

Q1. ABC is an isosceles triangle.
 The lengths, in cm, of the sides are

$AB = 4a + 3$, $BC = 2b + 5$ and $AC = 2a + b$



Not to scale

(a) $AB = BC$

Show that $2a - b = 1$

.....

(2)

(b) The perimeter of the triangle is 32 cm. Find the values of a and b .

.....

Answer $a =$ cm, $b =$ cm

(4)
 (Total 6 marks)

Q2. Solve these simultaneous equations

$$\begin{aligned}x + 3.6y &= 2 \\x - 2.4y &= 5\end{aligned}$$

You **must** show all your working.
Do **not** use trial and improvement.

.....
.....
.....
.....
.....

Answer $x =$

$y =$

(Total 3 marks)

Q3. Solve the simultaneous equations $4x + 3y = 14$ $2x + y = 5$

You **must** show your working.
Do **not** use trial and improvement.

.....
.....
.....
.....
.....
.....
.....
.....
.....

Answer $x =$, $y =$

(Total 3 marks)

(b) Expand and simplify $4(m + 3) + 3(2m - 5)$

.....
.....
.....

Answer

(2)

(c) Solve the simultaneous equations:

$$\begin{aligned} 2x + 3y &= 9 \\ 3x + 2y &= 1 \end{aligned}$$

You **must** show all your working.
Do **not** use trial and improvement.

.....
.....
.....
.....
.....
.....
.....

Answer $x = \dots\dots\dots$, $y = \dots\dots\dots$

(4)

(d) Factorise $x^2 + 6x - 16$

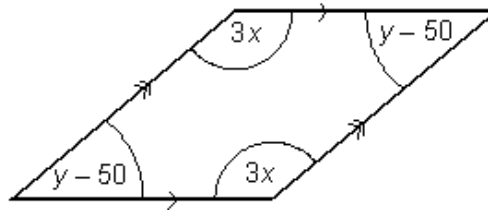
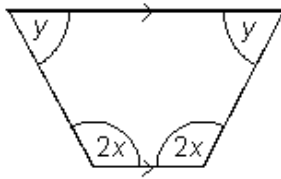
.....
.....
.....

Answer

(2)

(Total 9 marks)

Q6. The diagrams show a trapezium and a parallelogram.



Not drawn accurately

(a) Use the trapezium to explain why $2x + y = 180$

.....

(1)

(b) The parallelogram can be used to form another equation connecting x and y .

Tick a box to show the correct equation.

$3x + y = 130$

$3x + y = 230$

$3x = y - 50$

$3x + y = 410$

(1)

(c) Hence, or otherwise, work out the values of x and y .

.....

Answer $x = \dots\dots\dots$, $y = \dots\dots\dots$

(3)
 (Total 5 marks)

Q7. Solve the simultaneous equations

$$\begin{aligned}x + 3y &= 11 \\ 2x - y &= 1\end{aligned}$$

You **must** show your working.
Do **not** use trial and improvement.

.....

.....

.....

.....

.....

.....

.....

.....

.....

Answer $x = \dots\dots\dots$, $y = \dots\dots\dots$

(Total 3 marks)

Q8. $x^a \times x^b = x^7$

$$(x^a)^b = x^{10}$$

Work out the values of a and b .

.....

.....

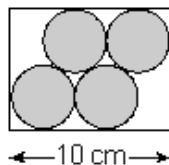
.....

.....

Answer $a = \dots\dots\dots$, $b = \dots\dots\dots$

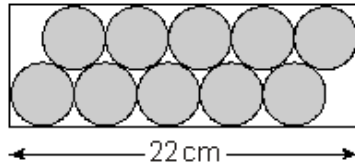
(Total 3 marks)

Q9. Four identical circular discs fit into a rectangle 10 cm long.



Not drawn accurately

Ten of the same discs fit into a rectangle 22 cm long.



Not drawn accurately

24 discs are placed together in the same way.

How long is the rectangle?

.....

.....

.....

.....

.....

.....

Answercm

(Total 3 marks)

Q10. The rule for continuing a Fibonacci sequence is to add the last two terms to make the next term.

For example, the sequence that starts 1, 1, ... continues as 1, 1, 2, 3, 5, 8, ...

Two other Fibonacci sequences start $a, 2a, \dots$ and $b, 4b, \dots$

The fifth terms of these two sequences are equal.

Given that $a + b = 11$, work out the values of a and b .

.....
.....
.....
.....
.....
.....
.....
.....

Answer $a = \dots\dots\dots$ $b = \dots\dots\dots$

(Total 4 marks)

Q11. Solve the simultaneous equations

$$2x + 5y = 16$$

$$4x + 3y = 11$$

You **must** show your working.

Do **not** use trial and improvement.

.....
.....
.....
.....
.....
.....
.....
.....

Answer

(Total 3 marks)

Q12. Two families go to a pantomime.

The Khan family of two adults and three children pay £69.

The Lewis family of three adults and five children pay £109.

Work out the cost of an adult ticket and the cost of a child ticket.

.....

.....

.....

.....

.....

.....

.....

.....

.....

Answer Adult ticket £ Child ticket £

(Total 5 marks)

