

Q1-2

1

Substitute $m=30$ and $a=40$ into the formula

$$\frac{30 \times 40}{150}$$

[]

8 ml []

2

Substitute $g=-5$ and $h=2$ into the formula (remember to put negative numbers in brackets)

$$f = 3 \times (-5) + 7 \times 2$$

[]

Find the value of f using BIDMAS (or a calculator)

$$f = -15 + 14$$

 $f = -1$ []

Q3

3

Add any x terms together

$$2x + 3x = 5x$$

Add any y terms together (there is only one)

$$4y$$

Add any numbers together

$$-3 + 8 = 5$$

either $5x$ or 5 seen []

Write your answer as the sum of the three terms

 $5x + 4y + 5$ []

Q4-5

4

Collect the g terms

$$6g - 4g = 2g$$

Collect the h terms

$$-5h + 2h = -3h$$

either $2g$ or $-3h$ seen [1]

Write down the final answer

$$2g - 3h [1]$$

5

Collect the ab terms

$$ab + 5ab = 6ab$$

Collect the g terms

$$-5g - 2g = -7g$$

either $6ab$ or $-7g$ seen [1]

Write down your final answer

$$6ab - 7g [1]$$

Q6-7

6

The order of operations means you should simplify the ' $a \times 4a$ ' first.

$$3a - a \times 4a + 2a = 3a - 4a^2 + 2a$$

Now collect like terms.

$$= 5a - 4a^2$$

The third option is correct, $5a - 4a^2$ [1]

7

The fraction 'bar' (called a vinculum) tells us that the $6c + 10$ should happen before dividing by 2 (it is "all over 2").This can also be seen as the $6c + 10$ needing brackets if written in a single line - " $(6c + 10) \div 2$ ".

The order of operations is brackets before division.

Sofia's method is incorrect as she should add 10 to $6c$ first, then divide by 2 [1]

Q8

8

Try substituting in a real value for x .

$$\text{If } x = 2, \text{ then } y = \frac{10}{2} = 5$$

Double the initial value you chose for x and substitute into the equation again.

$$\text{If } x = 4, \text{ then } y = \frac{10}{4} = 2.5$$

Compare the two values for y .When the value of x is doubled, the value for y is halved

+ 2 [1]

If you double the value of x then you are dividing 10 by a larger number, so the value of y should be smaller, this discounts the answers $\times 2$ and $\times 5$.You may get the incorrect answer of $\div 5$ if you confuse dividing by 2 with dividing by an x value that is doubled.

Q9-10

9

Collect together the 'like terms' (terms with the same letter) by rearranging the expression.
Remember that you must keep the sign in front of the term when you move it.
Be extra careful with the negative term.

$$3a - 4a + 7b + b$$

Add/subtract the like terms to simplify the expression.

$$-a + 8b$$

-a correct [1]
8b correct [1]

8b - a would also gain full marks

10

Simplify means to collect like terms.
There are 4 terms in the expression, $3a$, $-5b$, $-a$ and $+2b$.
 $3a$ and $-a$ are like terms.
 $-5b$ and $+2b$ are like terms.

$$\begin{aligned} \therefore 3a - 5b - a + 2b &= 3a - a - 5b + 2b \\ &= 2a - 3b \end{aligned}$$

$$2a - 3b$$

2a or -3b [1]
Both [1]

Q11-13

11

Re-arrange the expression so that the terms with the same letter (like terms) are next to each other.
Make sure you keep the sign in front of each term the same when you re-arrange it and be careful with the negative terms!

$$5c - 2c - d - 3d$$

Add/subtract the like terms to simplify the expression.

$$3c - 4d$$

3c correct [1]
-4d correct [1]

12

Substitute the values given for x and y into the expression.
You can simply plug the numbers into your calculator - but if you work it out by hand, pay attention to BIDMAS/ order of operations!

$$7 \times 12 + 3 \times (-6)$$

[1]

Final answer = 66 [1]

13

Solve $10w = 70$ by dividing both sides by 10

$$\begin{aligned} 10w &= 70 \\ w &= 7 \end{aligned}$$

w = 7 [1]