



1 Simplify $7c - 2c + 4c$

(1 mark)

The coefficient is the number multiplying a letter. Add the coefficients of matching letter terms, just as 4 lots of an object plus 5 lots make 9 lots
All the terms are in c , so combine the coefficients

$$7 - 2 + 4 = 9$$

$$7c - 2c + 4c = 9c$$

$$\boxed{9c}$$

2 Simplify $6x + 3y - 2x + 5y$

(2 marks)

Like terms have exactly the same letters and powers. Combine x terms with x terms and y terms with y terms; an x and a y need not have the same value
Collect the x terms

$$6x - 2x = 4x$$

Collect the y terms

$$3y + 5y = 8y$$

The simplified expression is $4x + 8y$

$$\boxed{4x + 8y}$$

3 a. Simplify $5 \times 2m$

b. Simplify $n \times n \times n \times n$

c. Simplify $3c \times 4d$

(3 marks)

$$a) 5 \times 2m = 10m$$

b) n multiplied by itself four times is n^4

c) Multiply the numbers

$$3 \times 4 = 12, \text{ then attach the letters: } 12cd$$

4

Simplify

a. $18p \div 6$

b. $4a \times 5b$

c. $24xy \div 8y$

(3 marks)

a)

$$18 \div 6 = 3$$

$$\boxed{3p}$$

b)

$$4 \times 5 = 20$$

$$a \times b = ab$$

$$\boxed{20ab}$$

c)

$$\frac{24xy}{8y}$$

$$24 \div 8 = 3 \text{ and the } y \text{ cancels}$$

$$\boxed{3x}$$

5

a. Simplify $8x + 5 - 3x + 2$

b. Simplify $2g \times 5g$

(3 marks)

a) Collect the x terms

$$8x - 3x = 5x. \text{ Collect the numbers: } 5 + 2 = 7. \text{ Answer } 5x + 7$$

b) Multiply the numbers

$$2 \times 5 = 10. \text{ Multiply the letters: } g \times g = g^2. \text{ Answer } 10g^2$$

6

The sides of a triangle are $(2a + 3)$ cm, $(4a - 1)$ cm and $(a + 5)$ cm.

Write an expression for the perimeter of the triangle. Give your answer in its simplest form.

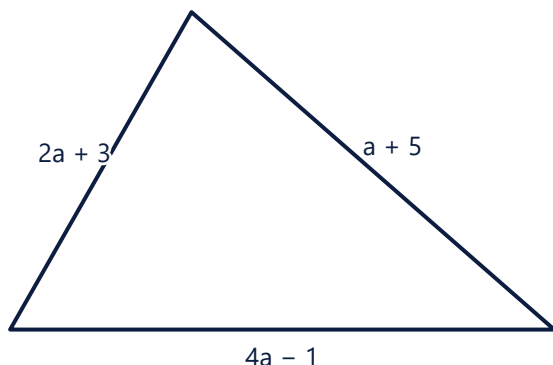


Diagram NOT accurately drawn

(2 marks)

$$(2a + 3) + (4a - 1) + (a + 5)$$

a terms

$$2a + 4a + a = 7a$$

numbers

$$3 - 1 + 5 = 7$$

$$7a + 7 \text{ cm}$$

7

Expand

a. $3(x + 4)$

b. $5(2y - 3)$

c. $a(a + 6)$

(3 marks)

a)

$$\begin{aligned} 3(x + 4) &= 3 \times x + 3 \times 4 \\ &= 3x + 12 \end{aligned}$$

b)

$$\begin{aligned} 5(2y - 3) &= 5 \times 2y - 5 \times 3 \\ &= 10y - 15 \end{aligned}$$

c)

$$\begin{aligned} a(a + 6) &= a \times a + a \times 6 \\ &= a^2 + 6a \end{aligned}$$

$$3x + 12, 10y - 15, a^2 + 6a$$

- 8 Oliver expands $4(3m - 2)$ and writes

$$4(3m - 2) = 12m - 2$$

Explain the mistake Oliver has made and write the correct answer.

(2 marks)

The 4 multiplies BOTH terms

$$4 \times 3m = 12m$$

$$4 \times 2 = 8 \text{ (Oliver forgot this)}$$

$$12m - 8$$

- 9 Expand and simplify $2(x + 5) + 3(x + 1)$

(2 marks)

$$\begin{aligned} 2(x + 5) + 3(x + 1) &= 2x + 10 + 3x + 3 \\ &= 5x + 13 \end{aligned}$$

$$5x + 13$$

- 10 Priya says that $(5x - 3) - (2x - 7) = 3x - 10$

Priya is wrong. Explain the mistake she has made.

(1 mark)

Subtracting the bracket changes the sign of every term inside it

$$(5x - 3) - (2x - 7) = 5x - 3 - 2x + 7 = 3x + 4$$

Priya kept -7 as -7 instead of changing it to +7

- 11 Expand and simplify $4(2a + 3) - 2(a - 5)$

(3 marks)

$$\begin{aligned} 4(2a + 3) - 2(a - 5) &= 8a + 12 - 2a + 10 \\ &= 6a + 22 \end{aligned}$$

$$6a + 22$$

12

Amara makes a poster from two rectangles of card.

Rectangle A is 3 cm by $(x + 4)$ cm.

Rectangle B is 5 cm by $(2x - 1)$ cm.

Show that the total area of the card is $(13x + 7) \text{ cm}^2$.

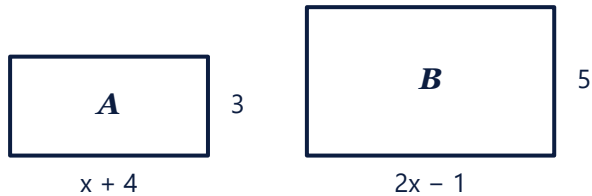


Diagram NOT accurately drawn

(3 marks)

$$A = 3(x + 4) = 3x + 12$$

$$B = 5(2x - 1) = 10x - 5$$

$$\text{Total} = 3x + 12 + 10x - 5$$

$$= 13x + 7$$

$$\boxed{13x + 7 \text{ cm}^2}$$