

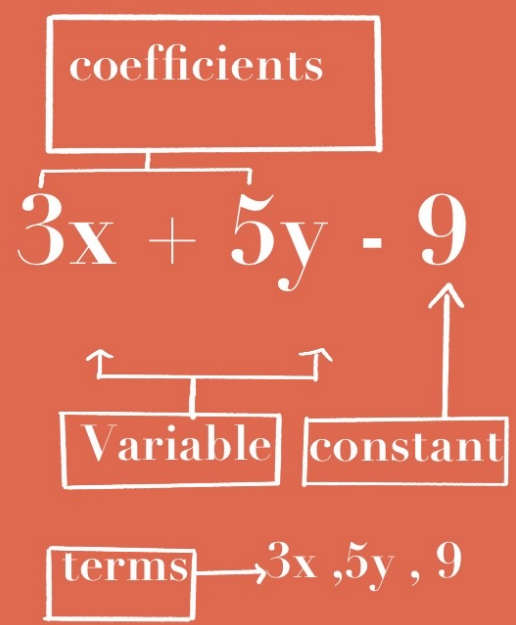
$x \rightarrow x \times 3 \rightarrow + 3 \rightarrow \boxed{?}$ $\boxed{5x}$

$x \rightarrow x \times 5 \rightarrow \boxed{?}$ $\boxed{4x}$

Forming Expressions

$x \rightarrow x \times 2 \rightarrow x \times 2 \rightarrow ?$
 $\boxed{3x + 3}$

$y \rightarrow ? \rightarrow ? \rightarrow ?$
 $\boxed{3y - 7}$



1. Apples cost a pence each.
Bananas cost b pence each.

Write down an expression for the total cost, in pencil, of 3 apples and 5 bananas.

$$\underline{3a + 5b} \text{ pence}$$

(2)

2. Martin is x years old.
Jennifer is 3 years younger than Martin.
Connor is twice as old as Martin.

(a) Write an expression for Jennifer's age.

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$$\underline{x - 3}$$

(1)

(b) Write an expression for Conner's age.

$$\underline{2x}$$

(1)

(c) Write an expression for the sum of the three ages

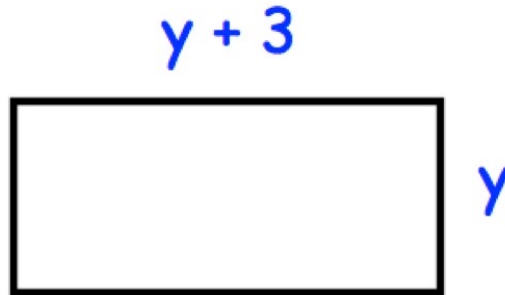
$$\begin{aligned} & x + x - 3 + 2x \\ = & 4x - 3 \end{aligned}$$

$$\underline{4x - 3}$$

(2)

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3.



The diagram shows a rectangle. All measurements are in centimetres.

Write an expression, in terms of y , for the perimeter of the rectangle.

$$\begin{aligned} & 2y + 2(y + 3) \\ &= 2y + 2y + 6 \\ &= 4y + 6 \end{aligned}$$

..... $4y + 6$cm
(2)

4. Nicola has y marbles.
Sean has 25 marbles.
Vicky has 10 marbles.

(a) Write down an expression for the total number of marbles they have.

$$\begin{aligned} & y + 25 + 10 \\ &= y + 35 \end{aligned}$$

..... $y + 35$
(2)

Altogether they have 55 marbles.

(b) Find how many marbles Nicola has.

$$\begin{aligned} & y + 35 = 55 \\ & y = 20 \end{aligned}$$

..... 20
(1)

5.



The express bus from Dublin to Belfast takes x minutes.

The standard bus takes 29 minutes longer.

(a) Write down an expression for the time the standard bus takes.



$$\frac{x+29}{\dots\dots\dots} \quad (1)$$

The airplane takes half the time the express bus takes.

(b) Write down an expression for the time the airplane takes.

$$\frac{x}{2} \dots\dots\dots \quad (1)$$

6. In one week, Gina spent x minutes on the internet.
Sammy spent 15 minutes less than Gina.

(a) Write down an expression for how long Sammy spent on the internet.

$$\frac{x-15}{(1)}$$

Neil spent three times as long as Gina on the internet.

(b) Write down an expression for how long Neil spent on the internet.

$$\frac{3x}{(1)}$$

(c) Write down an expression for total time spent on the internet.

$$\begin{aligned} x + x - 15 + 3x \\ = 5x - 15 \end{aligned}$$

$$\frac{5x-15}{(1)}$$

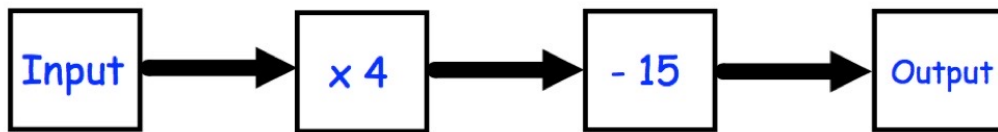
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7. Fred is 21 years old.
Hannah is y years younger than Fred.

Write an expression for Hannah's age.

$$\frac{21-y}{(1)}$$

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8.



(a) Work out the output, when the input is 10.

$$10 \times 4 = 40$$

$$40 - 15 = 25$$

$$\begin{array}{r} 25 \\ \hline \end{array} \quad (1)$$

(b) Work out the input, when the output is 25.

$$25 + 15 = 40$$

$$40 \div 4 = 10$$

$$\begin{array}{r} 10 \\ \hline \end{array} \quad (1)$$

(c) Write an expression for the output, if the input is y .

$$y \times 4 = 4y$$

$$4y - 15$$

$$\begin{array}{r} 4y - 15 \\ \hline \end{array} \quad (1)$$

(d) If the input is the same as the output, work out the input.

$$4y - 15 = y$$

$$4y - y = 15$$

$$3y = 15$$

$$y = 5$$

$$\begin{array}{r} 5 \\ \hline \end{array} \quad (1)$$

9. In a school canteen, a cup of tea costs 60p.

(a) Write down an expression for the cost, in pence, of y cups of tea.

$60y$pence
(1)

The canteen sells twice as many cups of coffee as it does cups of tea.

(b) Write down an expression for the cups of coffee sold when y cups of tea are sold.

$2y$
(1)

Each cup of coffee costs 80p.

(c) Write down an expression for the cost, in pence, of the cups of coffee sold.

$2y \times 80$

$160y$pence
(1)

The canteen also sells biscuits and fruit.

(d) Write down an expression for the cost, in pence, of w biscuits at 15p each and 8 pieces of fruit at 30p each.

$15w + 240$

$15w + 240$pence
(1)

10. An airplane has economy and first class seating.
There are s seats in each row in economy.
There are t seats in each row in first class.

There are 9 rows in first class and 24 rows in economy.

Write down an expression, in terms of s and t , for the number of seats on the airplane.

$$\underline{9t + 24s}$$

(2)

