

ALGEBRA - EXPRESSIONS - PRACTICE QUESTIONS



1.

At a supermarket, bananas cost 25p each and apples cost 35p each.

Write down an expression, in terms of b and a , for the total cost of b bananas and a apples.

$$25b + 35a$$

2.

Face masks are sold in packets and boxes.

There are 10 face masks in each packet and 30 face masks in each box.

Write down an expression, in terms of p and b , for the total number of face masks in p packets and b boxes.

$$10p + 30b$$

3.

John runs a farm.

He keeps sheep and cows.

A sheep needs 25 square feet of space and a cow needs 60 square feet of space.

Write down an expression, in terms of s and c , for the total space needed to keep s sheep and c cows.

$$25s + 60c$$

4.

Envelopes are sold in large packets and small packets.

Large packets contain 25 envelopes and small packets contain 8 envelopes.

Write down an expression, in terms of x and y , for the total number of envelopes in x large packets and y small packets.

$$25x + 8y$$

5.

On a website, phone cases cost £9 each and memory sticks cost £2 each. Each order has an additional delivery charge of £5.

Write down an expression, in terms of p and m , for the total cost of an order of p phone cases and m memory sticks.

$$9p + 2m + 5$$

6.

Karen is preparing snacks for a group of children. Each child needs 2 sausage rolls and one muffin.

Write down an expression, in terms of s and m , for the total number of sausage rolls (s) and muffins (m) required for a group of 15 children.

$$15(2s + m)$$

7.

Bobby bought some bananas. Each box of bananas contain 10 bunches. Each bunch of bananas contains 6 bananas.

Write down an expression, in terms of b , for the total number of bananas in b boxes.

$$60b$$

8.

There are some buildings on a street. Each building has 6 floors. Each floor has 3 flats. Each flat has 5 bedrooms.

Write down an expression, in terms of b , for the total number of bedrooms in b buildings.

$$6 \times 3 \times 5 = 90$$

$$90b$$

9.

Kaylie is opening up a plant stall at a market.
She buys the stall for £S and 15 boxes of plants for £B each.

Write down an expression, in terms of S and B, for the total cost.

$$S + 15B$$

10.

Mark is going to buy some sports equipment from a shop.
Cricket bats cost £45 each and cricket balls cost £9 each.
Mark has a voucher which takes £10 off the overall cost.

Write down an expression, in terms of x and y, for the total cost of Mark buying x cricket bats and y cricket balls.

$$45x + 9y - 10$$

11.

Naomi is looking for a plumber.
The plumber charges £18 per hour plus an additional call-out charge of £40.

Write down an expression, in terms of h, for the total costs of hiring the plumber for h hours.

$$18h + 40$$

12.

Tim has a season ticket that allows him to go to every Bristol City match this season.
The season ticket costs £C.
When Tim goes to a match, he spends £10 on food and drink.

Write down an expression, in terms of C and m, for the total cost Tim will pay to attend m matches this season.

$$C + 10m$$

13.

Terry is buying crisps for a party.

Each multipack contains 12 packets.

Each packet contains 20 crisps.

Terry is going to open all the packets he buys and share them equally with the guests.

Write down an expression, in terms of p and g , for the number of crisps g guests will get if Terry buys p multipacks.

$$20 \times 12 = 240$$

$$\frac{240p}{g}$$

14.

A train has two different types of carriage – first class and standard class.

Standard class carriages have 20 rows of seats.

First class carriages have 15 rows of seats.

There are 5 seats in each row in standard class and 4 seats in each row in first class.

Write down an expression, in terms of f and s , for the total number of seats available on a train with f first class carriages and s standard class carriages.

$$20 \times 5 = 100$$

$$15 \times 4 = 60$$

$$100s + 60f$$

15.

Jackie runs a hair salon.

She pays her hairdressers £9 per hour.

Each hairdresser can give 3 haircuts per hour.

Each haircut costs £12.

The salon is open for 8 hours each day.

Write down an expression, in terms of h , for the profit Jackie will make each day if she employs h hairdressers.

$$3 \times 8 \times 12 = 288$$

$$9 \times 8 = 72$$

$$288 - 72 = 216$$

$$216h$$

16.

A group of translators are translating some books.
The books each have 200 pages.
Each translator can translate 5 pages per hour.

Write down an expression, in terms of b and t , for the number of hours it will take t translators to translate b books.

$$\frac{200b}{5t} = \frac{40b}{t}$$

17.

Kevin, Martha and Lexie share some marbles.
Kevin has m marbles.
Martha has 10 more marbles than Kevin.
Lexie has twice as many marbles as Kevin.

Write down an expression, in terms of m , for the total number of marbles.

$$\begin{aligned} \text{Kevin} &= m \\ \text{Martha} &= m + 10 \\ \text{Lexie} &= 2m \end{aligned}$$

$$m + m + 10 + 2m = 4m + 10$$

18.

Imogen has 20 sweets.
Holly has 30 sweets.
Holly gives Imogen x sweets.
Imogen then eats half of her sweets.
Holly then eats 8 of her sweets.

(a) Write down an expression, in terms of x , for the number of sweets Holly now has.

$$30 - x - 8$$

(b) Write down an expression, in terms of x , for the number of sweets Imogen now has.

$$\frac{20 + x}{2}$$

19.

Mia, Nick and Oscar shared £90 between them.

Mia received £Y.

Nick received £5 less than Mia.

Oscar received the rest of the money.

Oscar then spent ~~a quarter~~ ^{half} of his money.

Write down an expression, in terms of Y, for the money that Oscar now has.

$$\text{Mia} = Y$$

$$\text{Nick} = Y - 5$$

$$\begin{aligned} \text{Oscar} &= 90 - 2Y + 5 \\ &= 95 - 2Y \end{aligned}$$

$$\frac{95 - 2Y}{2}$$

20.

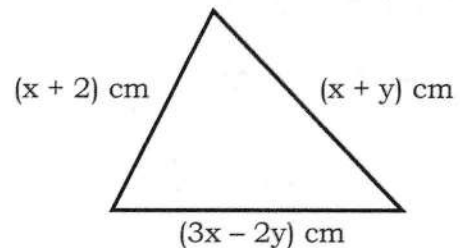
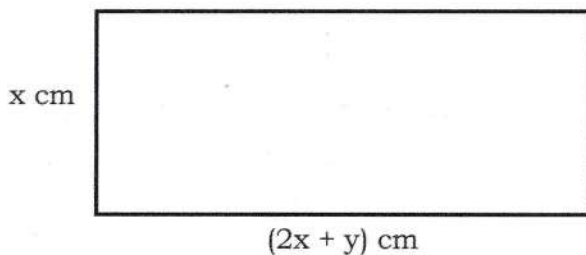
Jamal will be x years old in 5 years.

Write down an expression for Jamal's age 6 years ago, in terms of x.

$$x - 5 - 6 = x - 11$$

21.

Pictured below is a rectangle and a triangle.



(a) Write down an expression, in terms of x and y, for the perimeter of the rectangle.

$$x + 2x + y + x + 2x + y = 6x + 2y$$

(b) Write down an expression, in terms of x and y, for the area of the rectangle.

$$x(2x + y)$$

(c) Write down an expression, in terms of x and y, for the perimeter of the triangle.

$$x + 2 + x + y + 3x - 2y = 5x - y + 2$$