



1 Work out $3 + 4 \times 5$

(1 mark)

The order of operations is a shared convention so everyone reads the same expression the same way. Do brackets, then powers, then multiplication/division from left to right, then addition/subtraction from left to right

Multiplication comes before addition

$$4 \times 5 = 20$$

$$3 + 20 = 23$$

23

2 a. Work out $15 - 6 + 4$

b. Work out $30 \div 5 \times 3$

(2 marks)

a) $+$ and $-$ are equal, go left to right

$$15 - 6 + 4 = 9 + 4$$

$$= 13$$

13

b) $\times$ and $\div$ are equal, go left to right

$$30 \div 5 \times 3 = 6 \times 3$$

$$= 18$$

18

3 Sam works out $24 \div 4 \times 2$

Sam's answer is 3

Sam's answer is wrong.

Explain what Sam has done wrong.

(1 mark)

Sam worked out $4 \times 2 = 8$ first, then $24 \div 8 = 3$

Division and multiplication have equal priority, so work from left to right

$$24 \div 4 = 6, \text{ then } 6 \times 2 = 12$$

4 Work out $\sqrt{49} + 2^3 \times 3$

(2 marks)

Roots and powers first

$$\sqrt{49} + 2^3 \times 3 = 7 + 8 \times 3$$

Then multiply

$$= 7 + 24$$

$$= 31$$

31

5 Work out $(5^2 - 1) \div (2 + 4) \times 3$

(2 marks)

Brackets first (power inside the bracket first)

$$(5^2 - 1) \div (2 + 4) \times 3 = (25 - 1) \div 6 \times 3$$

$$= 24 \div 6 \times 3$$

$\div$ and $\times$ left to right

$$= 4 \times 3$$

$$= 12$$

12

6 a. Write down the reciprocal of 5

b. Work out $20 \times \frac{1}{5} + 3^2$

(2 marks)

a) Reciprocal = $1 \div$ the number

$\frac{1}{5}$

b) Power first, then $\times$, then $+$

$$20 \times \frac{1}{5} + 3^2 = 20 \times \frac{1}{5} + 9$$

$$= 4 + 9$$

$$= 13$$

13

7

- a. Work out $8 + 12 \div 4$
- b. Put a pair of brackets in this statement to make it true.
 $8 + 12 \div 4 = 5$
- c. Put a pair of brackets in this statement to make it true.
 $2 + 3 \times 4 - 1 = 19$

(3 marks)

a) Division first

$$12 \div 4 = 3, \text{ then } 8 + 3 = 11$$

$$b) (8 + 12) \div 4 = 20 \div 4 = 5$$

$$c) (2 + 3) \times 4 - 1 = 5 \times 4 - 1 = 20 - 1 = 19$$

8

Work out $3.6 + 4.8 \times 2.5$

(2 marks)

Multiply first

$$4.8 \times 2.5 = 12.00$$

2 decimal places in the question

$$4.8 \times 2.5 = 12.00$$

Then add

$$3.6 + 12 = 15.6$$

15.6

9

Lily buys 3 notebooks and a pen.

Each notebook costs £1.35.

The pen costs 85p.

Lily pays with a £10 note.

Work out how much change Lily should get.

(3 marks)

3 notebooks

$$3 \times £1.35 = £4.05$$

Total spent

$$£4.05 + £0.85 = £4.90$$

Change

$$£10.00 - £4.90 = £5.10$$

£5.10

10

Work out $1\frac{1}{2} \times 4 - \frac{2}{3}$

Give your answer as a mixed number.

(3 marks)

Multiply first

$$1\frac{1}{2} \times 4 = \frac{3}{2} \times 4$$

$$= \frac{12}{2}$$

$$= 6$$

Then subtract

$$6 - \frac{2}{3} = 5\frac{1}{3}$$

$$\boxed{5\frac{1}{3}}$$

11

Work out $(346 - 128) \times 24$

Do not use a calculator.

(3 marks)

Brackets first

$$346 - 128 = 218$$

Then 218×24

$$218 \times 20 = 4360$$

$$218 \times 4 = 872$$

$$4360 + 872 = 5232$$

$$\boxed{5232}$$

12

36 pupils go on a school trip to a theme park.

The coach costs £540 in total. The coach cost is shared equally between the pupils.

Each pupil also pays £8.50 for their own entry ticket.

Work out the total amount each pupil pays.

(3 marks)

Coach cost for one pupil

$$540 \div 36 = 15$$

Check: $36 \times 15 = 360 + 180 = 540$ *Add the entry ticket*

$$£15 + £8.50 = £23.50$$

$$\boxed{£23.50}$$