

1

Work out

cube root of 512 : reciprocal of 0.4

Give your answer in the form $n : 1$ **[3 marks]**

Answer _____ :

- 2 A , B , C and D are junctions on a motorway.

Not drawn
accurately



distance $CD = 3 \times$ distance AB

distance $BC = 25$ miles

Salma drives from A to C .

She drives for 30 minutes at an average speed of 62 miles per hour.

Work out the distance AD .

[4 marks]

Answer _____ miles

3

$$d = 2f$$

$$\frac{e-f}{d-e} = \frac{1}{4}$$

Work out the ratio $e : f$ **[3 marks]**

Answer _____ : _____

4 A is half of B .

Work out the ratio $A : B$

Circle your answer.

[1 mark]

1 : 2

2 : 1

1 : 3

3 : 1

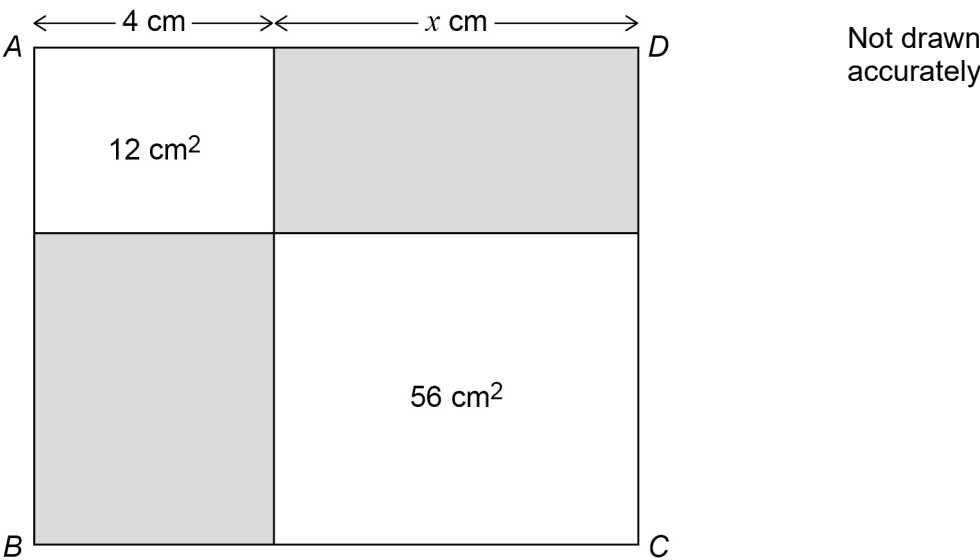
5 Jeff and Kaz share £270 in the ratio Jeff : Kaz = 2.6 : 1

How much **more** than Kaz does Jeff get?

[3 marks]

Answer £ _____

6 Rectangle $ABCD$ is split into four smaller rectangles.
Two of the smaller rectangles are shaded.



$4 : x = 1 : 2$

For rectangle $ABCD$, work out the ratio shaded area : unshaded area
Give your answer in its simplest form.

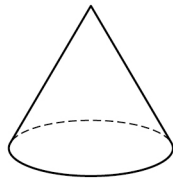
[4 marks]

Answer _____ : _____

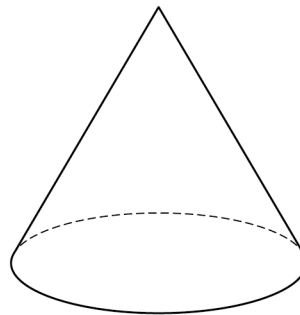
7

Here are two similar cones.

Cone A



Cone B

The surface area of cone A is 2 m^2 The surface area of cone B is 4.5 m^2

Work out the ratio radius of cone A : radius of cone B

Give your answer in the form $1 : n$ **[3 marks]**

Answer _____ : _____

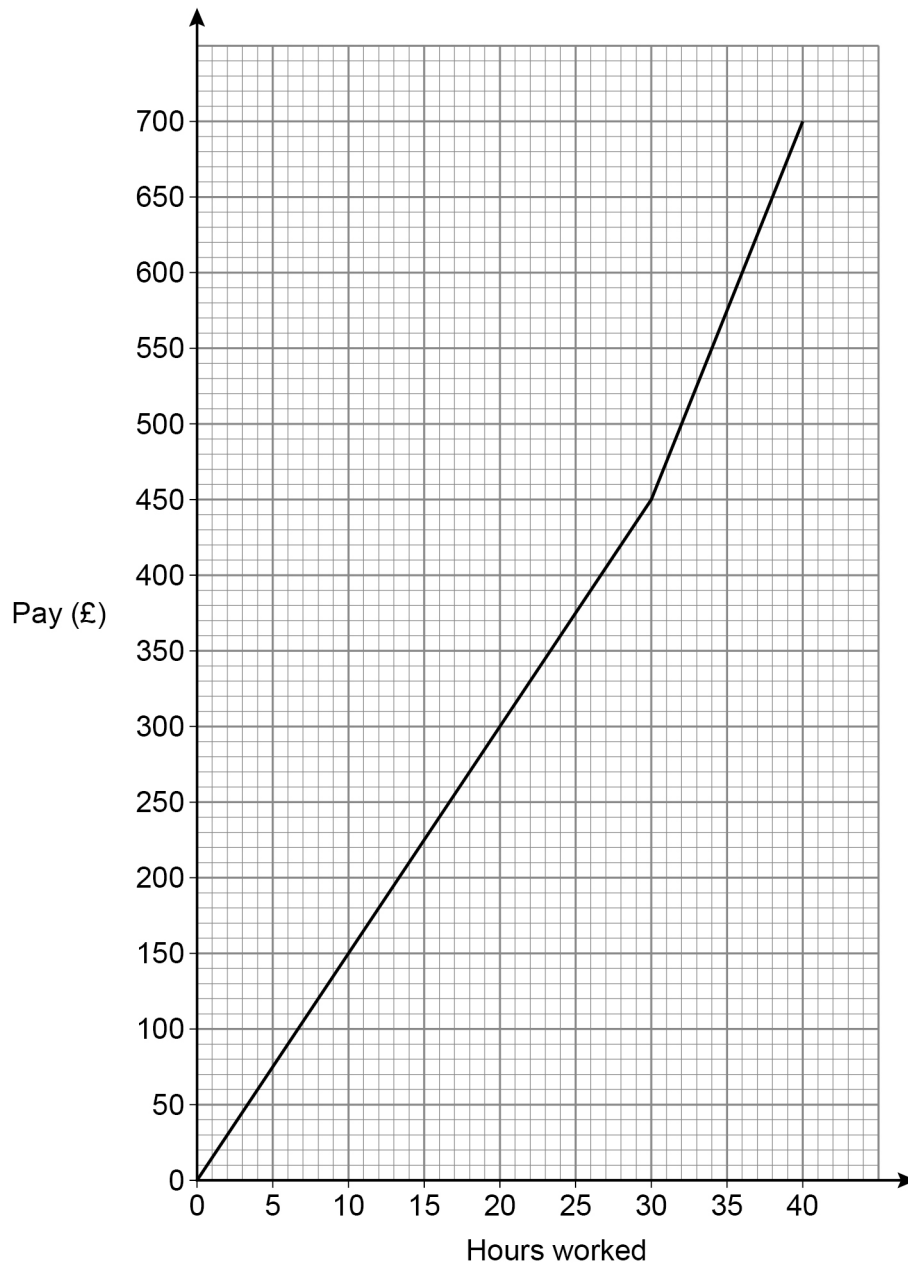
8

In a week, Samir is paid

a basic hourly rate for the first 30 hours worked

an overtime hourly rate for any extra hours worked.

The graph shows his pay for working up to 40 hours in a week.



Work out the ratio basic hourly rate : overtime hourly rate

Give your answer in its simplest form.

[3 marks]

Answer _____ : _____

- 9 (a) Amol received £6660 from selling the 3000 sandwiches in June.

The numbers of sandwiches sold were in the ratio

$$\text{meat} : \text{cheese} : \text{vegan} = 9 : 4 : 7$$

The price of a meat sandwich is £2.39

The price of a cheese sandwich is £1.89

Work out the price of a vegan sandwich.

[4 marks]

Answer £ _____

Two objects, J and K, are applying pressure to areas of ground.

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

For J, the force is 18.9 newtons and the area is 0.45 m^2

pressure for J : pressure for K = 7 : 8

$$\text{area for J} : \text{area for K} = 9 : 5$$

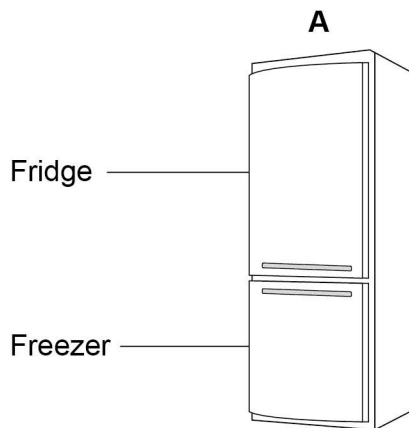
Work out the force for K.

[4 marks]

[illegible]

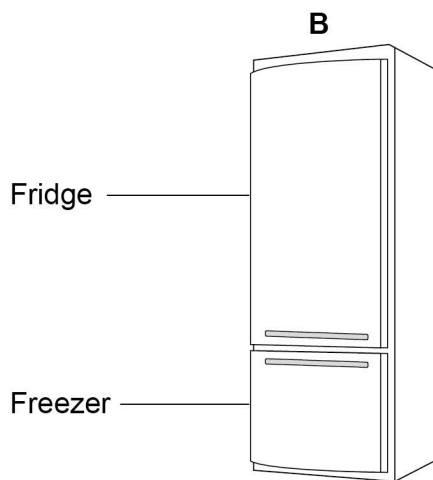
Answer newtons

- 11 Information about two fridge-freezers, A and B, is shown.



Total capacity is 330 litres

fridge capacity : freezer capacity = 3 : 2



Fridge capacity is 294 litres

fridge capacity : freezer capacity = 7 : 3

Grace buys one of these fridge-freezers.

She buys the one with the greater **freezer** capacity.

Which one does she buy?

You **must** show your working.

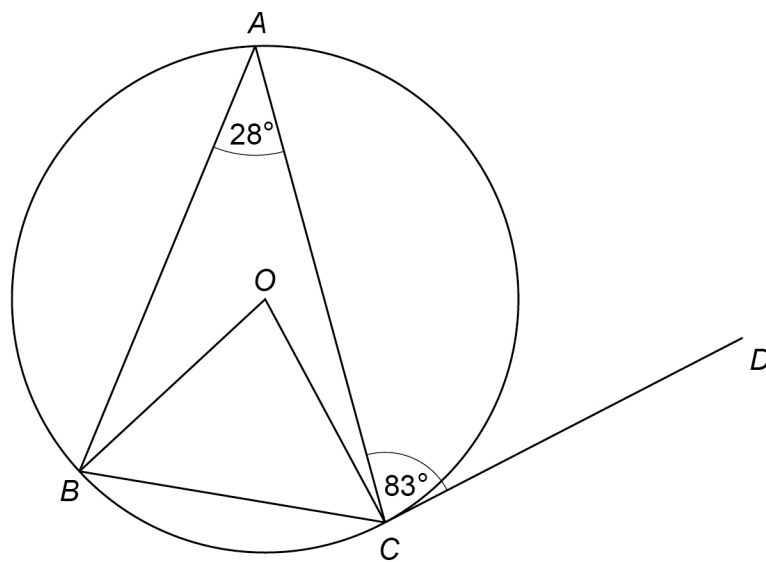
[4 marks]

Answer _____

12

A , B and C are points on a circle, centre O .

DC is a tangent to the circle.



Show that $\text{angle } ABO : \text{angle } ACO = 3 : 1$

[5 marks]

13 Andrew and Bruce share some money in the ratio 5 : 6

Bruce gets £96

Andrew gives $\frac{1}{4}$ of his share to Carl.

Bruce gives $\frac{2}{3}$ of his share to Carl.

How much money does Carl receive?

[4 marks]

Answer £ _____

14 Write $30 : 12$ in the form $n : 1$

[1 mark]

Answer _____ : 1

15

Jess saves 2p, 5p and 10p coins.

She has

- 45 10p coins
- 8 times as many 2p coins as **10p coins**
- £17.70 in total.

Work out total **value** of 2p coins : total **value** of 5p coins

Give your answer in its simplest form.

[4 marks]

Answer _____ :

16

Jing has £2450

She saves some and gives the rest to her four brothers.

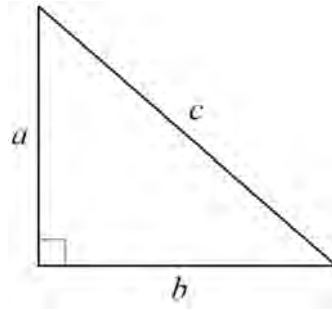
money saved : money given to brothers = 2 : 5

She gives each of her **four** brothers the **same** amount.

Does each brother receive more than £430 ?

You **must** show your working.**[4 marks]**

17



Not drawn
accurately

In this right-angled triangle,

$$a = 16 \text{ cm}$$

$$a : c = 4 : 5$$

Work out the area of the triangle.

[4 marks]

Answer _____ cm^2

18 (a) G is directly proportional to the square root of H .

$G : H = 3 : 2$ when $H = 16$

Work out $G : H$ when $H = 100$

[4 marks]

Answer _____ : _____

19 Divide 62 in the ratio 3 : 7

[3 marks]

Answer _____ and _____

- 20** Write $(3^6 \times 3^5) : 3^7$ in the form $n : 1$ where n is an integer. **[3 marks]**

Answer _____ : 1

- 21** a is 10% more than b .
Circle the ratio $a : b$ **[1 mark]**

10 : 11

10 : 1

11 : 10

1 : 10

22

A road has three sections, D, E and F.

The lengths of D, E and F are in the ratios

$$D : E = 3 : 5 \quad E : F = 7 : 4$$

What fraction of the length of the road is section D?

[3 marks]

Answer _____

23 Joe, Kim and Lisa each have an amount of money.

Joe has £72

Joe's amount : Kim's amount = 6 : 5

Lisa's amount is $1\frac{1}{2}$ times Joe's amount.

Show that, in total, they have **less** than £250

[3 marks]

24 Here are the results after 250 spins of a coin.

Heads	128
Tails	122

The coin is spun an extra 50 times.
After all 300 spins, the relative frequency of Heads is 0.49

For the **extra 50 spins**, work out number of Heads : number of Tails **[3 marks]**

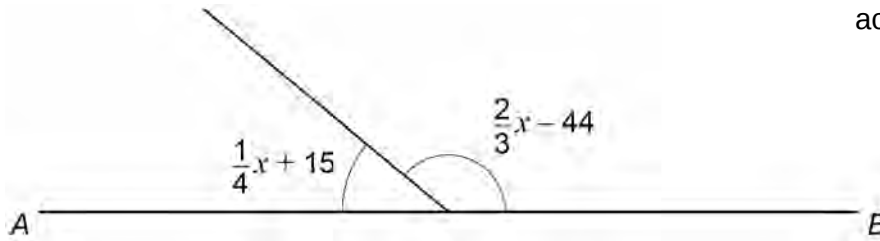
Answer _____ : _____

25

AB is a straight line.

Both angles are given in degrees.

Not drawn accurately



By working out the value of x ,

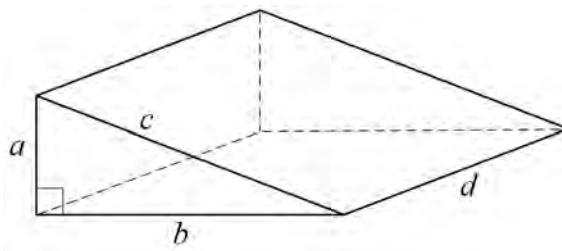
work out the ratio smaller angle : larger angle

[4 marks]

Answer _____ :

26

Here is a right-angled triangular prism.



The ratio of the edges is $a : b : c : d = 3 : 4 : 5 : 12$

The **volume** of the prism is 1125 cm^3

Work out the total length of **all** of the edges of the prism.

[5 marks]

Answer cm