

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Ratio, proportion and rates of change

Converting units of length, area, volume, mass and capacity

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

- In all calculations, show clearly how you work out your answer

For questions 1 to 23 you must **NOT** use a calculator.



Q1.

What is 680 millimetres in centimetres?

Circle your answer.

0.68 cm

6.8 cm

68 cm

6800 cm

(Total 1 mark)

Q2.

How many centimetres are there in 3.7 metres?

Circle your answer.

0.037

0.37

37

370

(Total 1 mark)

Q3.

Convert 2.5 metres into centimetres.

Circle your answer.

0.025cm

25cm

205cm

250cm

(Total 1 mark)

Q4.

How many millimetres are there in 7.5 centimetres?

0.75

70.5

75

750

7500

(Total 1 mark)

Q5.

Harry is tiling a wall of area 25 m^2

A tub contains 15 kg of tile cement.

The instructions say 2 kg of tile cement will tile 1 m^2 of wall.

(a) How many tubs does Harry need to buy?

(3)

(b) In fact, Harry uses more than 2 kg of tile cement per m^2

Without need to buy more tubs,

what is the maximum amount he could use per m^2 ?

(2)

(Total 5 marks)

Q6.

(a) Use $8 \text{ km/h} = 5 \text{ mph}$ to convert 96 km/h to mph

(2)

(b) $x \text{ km/h} = y \text{ mph}$

Use $8 \text{ km/h} = 5 \text{ mph}$ to write a formula for y in terms of x .

(2)

(Total 4 marks)

Q7.

What is 260 millimetres in centimetres?

Circle your answer.

0.26 cm

2.6 cm

26 cm

2600 cm

(Total 1 mark)

Q8.

Convert 7 gallons to litres.

Use $1 \text{ gallon} = 4.5 \text{ litres}$

(Total 2 marks)

Q9.

The distance between 2 towns is 48 km

8 km = 5 miles

(a) Work out the distance between the 2 towns in miles.

(3)

(b) A car travels at an average speed of 20 miles per hour between the 2 towns.
What length of time does the car take to travel between the 2 towns?

(2)

(Total 5 marks)

Q10.

How many centimetres are in 3.5 metres?

(Total 2 marks)

Q11.

Convert 24 kilometres to miles.

Use 8 kilometres = 5 miles

(Total 2 marks)

Q12.

Ollie and Rachel run a marathon race.

(a) Ollie starts the race at 9.15 am

He takes $3\frac{3}{4}$ hours to finish the race.
At what time does he finish?

(2)

(b) Rachel has a target time of 4 hours 10 minutes.

She has been running for 186 minutes.

To meet her target, how many minutes does she have left to finish the race?

(3)

(Total 5 marks)

Q13.

Complete the statement.

8 kilograms = _____ grams

(Total 1 mark)

Q14.

Complete the statement.

2 metres = _____ centimetres

(Total 1 mark)

Q15.

1 pound = 16 ounces

Work out the number of ounces in 3 pounds.

(Total 2 marks)

Q16.

Circle the volume that is the same as 15 cm^3

15 000 mm³

1.5 mm³

0.0015 mm³

150 mm³

(Total 1 mark)

Q17.

Which of these is smallest

25 centimetres as a fraction of 2 metres

or 30 grams as a fraction of 2 kilograms

or 11 pence as a fraction of £1?

You **must** show your working.

(Total 5 marks)

Q18.

How many minutes are there in $3\frac{1}{2}$ hours?

Circle your answer.

180.5

210

330

350

(Total 1 mark)

Q19.

Samir and Dan run a race.

Samir finishes in $2\frac{1}{2}$ minutes.

Dan finishes in 130 seconds.

Complete the following sentence.

_____ wins by _____ seconds.

(Total 2 marks)

Q20.

Use 2 gallons = 9 litres to convert 17 gallons into litres.

(Total 3 marks)

Q21.

Circle the area that is the same as 5.5 m^2

550 cm^2

5 500 cm^2

55 000 cm^2

5 500 000 cm^2

(Total 1 mark)

Q22.

These instructions are on a bottle of lawn feed.

‘Mix 200 millilitres of lawn feed with 10 litres of water.’

How many millilitres of lawn feed should be mixed with 3 gallons of water?

Use 1 gallon = 4.5 litres

(Total 3 marks)

Q23.

Which of these fractions is largest

A: 6 as a fraction of 30

B: 30 centimetres as a fraction of 2 metres

C: 16 pence as a fraction of £1 ?

You **must** show your working.

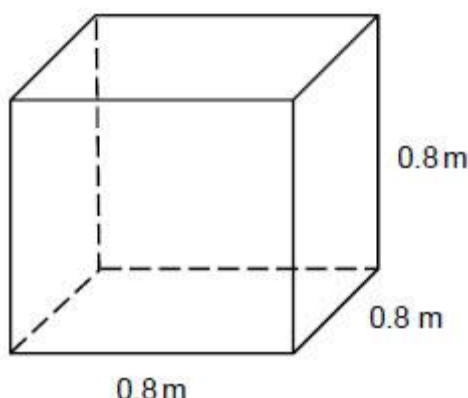
(Total 5 marks)

For the rest of the questions, you may use a calculator.



Q24.

A cube has edges of length 0.8 metres.



Work out its volume in **cubic centimetres**.

(Total 2 marks)

Q25.

Circle the area that is equal to 36 mm^2

360 cm^2

3600 cm^2

3.6 cm^2

0.36 cm^2

(Total 1 mark)

Q26.

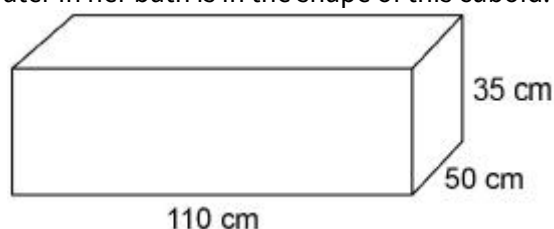
Eva thinks she can save water by having a shower instead of a bath.

Eva's shower

uses 10.8 litres per minute

lasts for 8 minutes.

Eva assumes that the water in her bath is in the shape of this cuboid.



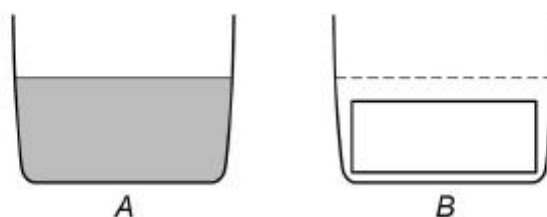
$1000 \text{ cm}^3 = 1 \text{ litre}$

- (a) Using Eva's assumption, work out how many litres of water she saves by having a shower instead of a bath.

(5)

- (b) A shows the water level before Eva gets into the bath.
B shows the cuboid in the empty bath.

Not drawn accurately



What does this tell you about the amount of water saved?

(1)

(Total 6 marks)

Q27.

A bottle contains 1.5 litres of water.
650 millilitres of the water is poured into a jug.
How much water is left in the bottle?
State the units of your answer.

(Total 3 marks)

Q28.

In this question use
1 cubic foot = 6.23 gallons
1 cubic foot = 0.028 cubic metres
Convert 3115 gallons into cubic metres.

(Total 3 marks)

Q29.

Circle the correct statement.

$1 \text{ m}^2 = 100 \text{ mm}^2$

$1 \text{ cm}^2 = 100 \text{ mm}^2$

$1 \text{ m}^2 = 100 \text{ cm}^2$

$1 \text{ km}^2 = 100 \text{ m}^2$

(Total 1 mark)