

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Ratio, proportion and rates of change

Solving direct proportion word problems

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

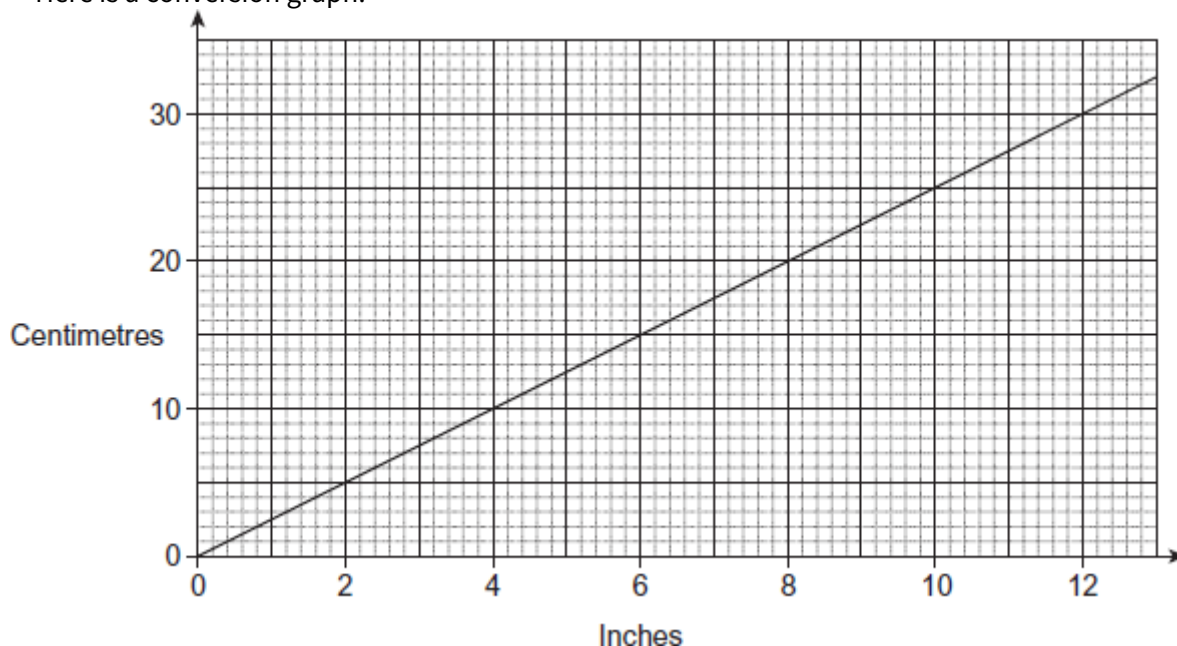
- In all calculations, show clearly how you work out your answer

For questions 1 to 7 you must **NOT** use a calculator.



Q1.

Here is a conversion graph.



Shaz has 150 cm of material.

She needs 75 inches of material to make a skirt.

Does she have enough material?

You **must** show your working.

(Total 3 marks)

Q2.

70% of a number is 350

Work out 120% of the number.

(Total 3 marks)

Q3.

The cost of 3 calendars is £18

Work out the cost of 5 calendars.

(Total 2 marks)

Q4.

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)

Q5.

A recipe needs 300 grams of flour to make 4 cakes.

(a) How much flour is needed to make 6 cakes?

(2)

(b) 1 kg = 1000 grams

How many cakes can be made from a 1.5 kg bag of flour?

(3)

(Total 5 marks)

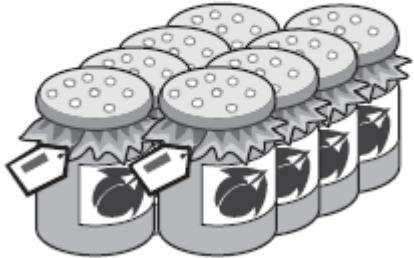
Q6.

(a)

Plum jam

Recipe for 8 jars

Caster Sugar	1.8 kg
Plums	1.2 kg
Water	160 ml
Lemon Juice	100 ml



Jayne wants to make **4 jars** of jam.
How many **grams** of plums does she need?

(1)

- (b) Jayne has 860 grams of caster sugar.
How much **more** caster sugar will she need to make **4 jars** of jam?
State the units of your answer.

(2)

(Total 3 marks)

Questions 7 is **higher** tier only.

Q7.

Tom has £30 more than Ann.
They have £110 in total.
What fraction of the total does Tom have?

(Total 3 marks)

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



Q8.

6 cakes cost £10.74
Work out the cost of 11 of these cakes.

(Total 2 marks)

Q9.

- (a) 2 tubs of ice cream cost £5.90
How much would 5 of these tubs cost?
- (b) A factory makes 8000 tubs of ice cream.
Each tub contains 500 **millilitres**.
How many **litres** of ice cream does the factory make?

(3)

(2)

(Total 5 marks)

Q10.

Laura buys a saddle in the UK for £850
Delivery is free.



Steve buys the same saddle from Holland for 990 Euros.
He pays 15 Euros for delivery.

£1 = 1.18 Euros

Including the delivery charge, whose saddle is **cheaper**?
You **must** show your working.

(Total 3 marks)

Q11.

The cost of 5 kg of potatoes is £3.20

The cost of $\frac{1}{2}$ kg of carrots is 29p

Work out the **total** cost of 12 kg of potatoes and $1\frac{1}{2}$ kg of carrots.

(Total 3 marks)

Q12.

Here are Jon's marks in two tests.

Test A 18 out of 25

Test B 30 out of 40

Which test gives the higher percentage mark?

You **must** show your working.

(Total 3 marks)

Q13.

- (a) A drink is made from 1.5 litres of orange juice and 7.5 litres of lemonade.
What fraction of the drink is orange juice?
Give your answer in its simplest form.

(3)

- (b) A different drink is made from 2 litres of blackcurrant juice and 12 litres of water.
How much more blackcurrant juice should be added so that 25% of the drink is blackcurrant juice?

(3)

(Total 6 marks)

Q14.

- (a) You are given that 1 mile = 1.6 kilometres

Convert $6\frac{1}{2}$ miles into kilometres.

(2)

- (b) A manufacturer claims a car like mine uses 5.5 litres per 100 km.

My car does 50 miles per gallon.

Is my car using more or less fuel than the manufacturer claims?

You **must** show your working.

(5)

(Total 7 marks)

Q15.

Here are the ingredients to make 8 biscuits.

75 g	flour
50 g	sugar
40 g	butter
2	egg yolks

Work out the ingredients to make 20 biscuits.

(Total 3 marks)

Q16.

Ingredients for biscuits

60 g of sugar
120 g of butter
180 g of flour



Tony

With these ingredients I can make
40 small biscuits
or
20 large biscuits.

Tony wants to make 20 small biscuits **and** 15 large biscuits.

Work out how much of each ingredient he needs.

You **must** show your working.

(Total 4 marks)

Q17.

Pancakes for 6 people

50 g flour
25 g butter
1 egg
150 ml milk

How much milk is needed to make pancakes for 15 people?

(Total 3 marks)

Q18.

A house is being built.
8400 bricks will be laid.



Three bricklayers will
each lay 350 bricks per day
each be paid £115 per day.
How much **in total** will they be paid?

(Total 3 marks)

Q19.

The total cost of broadband for 5 months is £99.20
At the same monthly rate, work out the total cost of broadband for 2 **years**.

(Total 3 marks)

Q20.

12 pens cost £2.40
How much do 30 pens cost?

(Total 3 marks)

Q21.

An electric car uses 1 unit of electricity to travel 3 miles.
1 unit of electricity costs 50 pence.
Work out the cost of electricity, in pounds, to travel 270 miles.

(Total 3 marks)

Q22.

Here is a list of what you need to make 20 buns.

180 g	butter
150 g	flour
200 g	sugar
4	eggs

Work out what you need to make 30 buns.

(Total 3 marks)

Q23.

Amal drives her car for work.
She claims 40p per mile from her employer.
Amal's car travels 52 miles for each gallon of petrol.
She pays £5.36 per gallon for petrol.
On one journey Amal drives 260 miles.
For this journey, how much **more** does she claim than she pays for petrol?

(Total 4 marks)