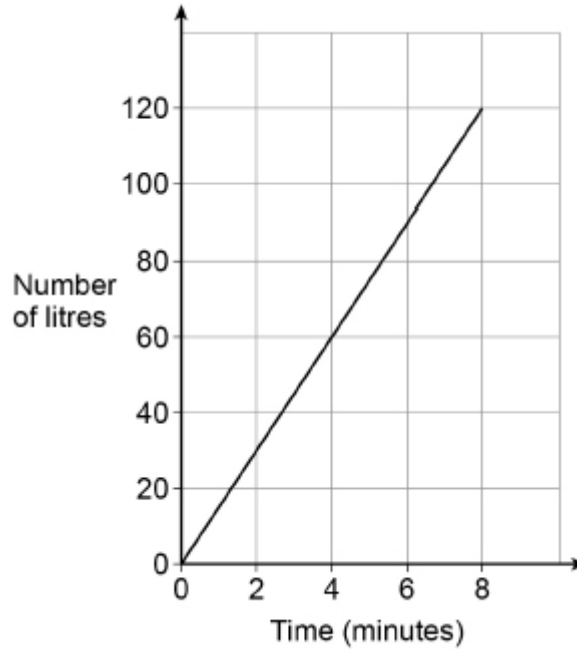# GCSE MATHEMATICS (8300) COMMON GRADES 4 & 5

Ratio, proportion and rates of change

Total number of marks: 34 per optional item

Q16

Water is poured into a tank.

The graph shows the number of litres of water in the tank.

How much water is poured into the tank each minute?

Circle your answer.

1.5 litres   15 litres   30 litres   120 litres

(Total 1 mark)

Q14

In this question, use

1 kilogram = 2.2 pounds

1 stone = 14 pounds

Change 70 kilograms into stones.

Answer _____ stones

(Total 3 marks)

Q7

Three friends arrive at a party.

Their arrival increases the number of people at the party by 20%

In total, how many people are now at the party?

Answer _____

(Total 2 marks)

Q9a

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

The mass of solid A is 6 times the mass of solid B.

The volume of solid A is 3 times the volume of solid B.

Complete the sentence.

The density of solid A is _____ times the density of solid B.

(Total 1 mark)

Q9b

$$\text{Average speed} = \frac{\text{distance}}{\text{time}}$$

If the distance is halved and the time is doubled, what happens to the average speed?

Circle your answer.

| × 2 | × 4 | no change | ÷ 2 | ÷ 4 |

(Total 1 mark)

Q23a

(a) Tom is tiling a wall.

He needs to buy at least 100 tiles.
The tiles are sold in large packs and small packs.

> Large pack   40 tiles   £18
>
> Small pack   28 tiles   £14
>
> *Special offer*
>
> 25% reduction when you buy 3 or more **large** packs

Work out the cheapest cost for Tom to buy the packs of tiles he needs.

Answer £ _____

(Total 3 marks)

Q7

Investment A   Save £150 per month for 2 years.

2.5% interest is added to the total amount saved.

Investment B   Invest £3500

Compound interest is added at 3% per year.

After 2 years, how much **more** is investment B worth than investment A?

Answer £ _____

(Total 4 marks)

Q13

$e : f = 2 : 3$ and $f : g = 5 : 4$

Work out $e : g$

Give your answer in its simplest form.

(Total 3 marks)

Q11
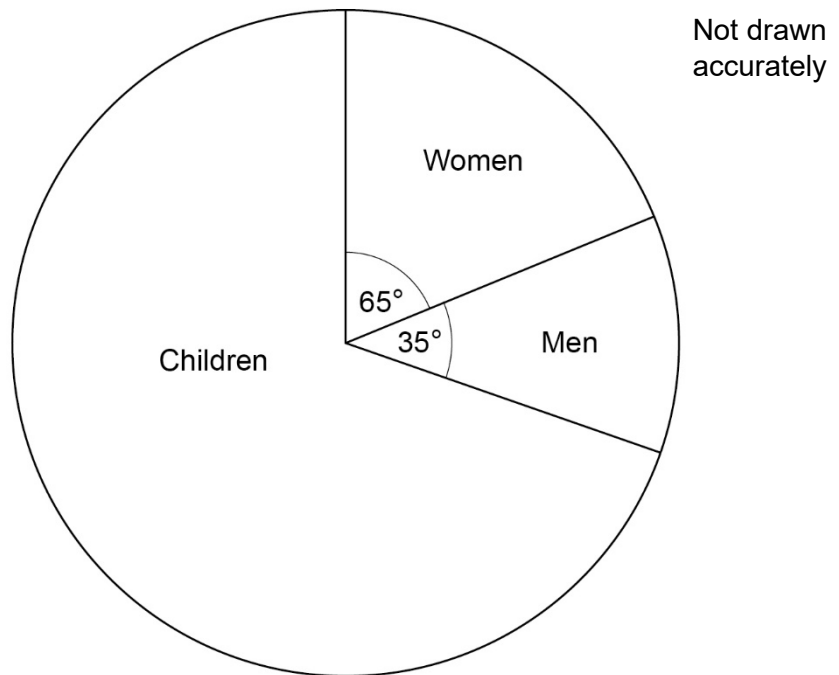
Joe and Kyle share an amount of money in the ratio $7 : n$

Joe gets 35% of the money.

Work out the value of n.

(Total 2 marks)

Q9

The pie chart shows information about people at a theme park.

Not drawn accurately

There were 450 **more** women than men.

Work out the number of children.

(Total 3 marks)

Q19a

(a)   Divide 120 in the ratio 1 : 4

Answer _____ : _____

(Total 2 marks)

Q19b

(b)   Write the ratio   7 : 4   in the form $n : 1$

Answer _____ : _____

(Total 1 mark)

Q20

In 2015, Han was paid £1350 per month.

In 2016, he

had a 2% increase in his monthly pay.
worked 37.5 hours per week.
worked for 47 weeks.

Work out Han's average pay **per hour** for 2016

Answer £ _____

(Total 5 marks)

Q25

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

Work out the **force** when the pressure is 24 N/m² and the area is 3 m²

Circle your answer.

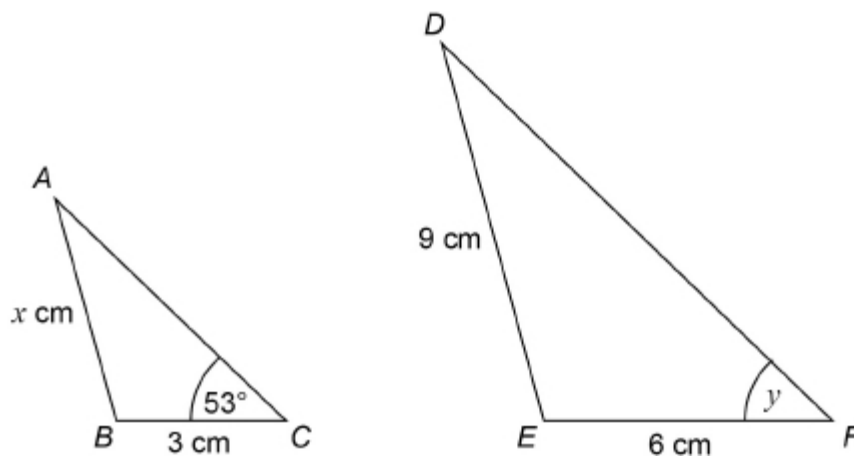0.125 N   8 N   27 N   72 N

(Total 1 mark)

Q16a

Triangles *ABC* and *DEF* are similar.

Not drawn accurately

(a) Work out the value of x.

(Total 2 marks)