Name ..... Class .....

Calculator Crossover Paper 2

GCSE Mathematics · Foundation and Higher

40 marks · 45 minutes · Calculator

1 (a) Use your calculator to work out $\dfrac{\sqrt{48.6} + 3.7^2}{5.2 - 1.85}$

Write down all the figures on your calculator display.

..... **(2)**

(b) Write your answer to part (a) correct to 3 significant figures.

..... **(1)**

[Question 1: 3 marks]

2 (a) Make t the subject of the formula $v = u + at$

$t =$ ..... **(2)**

(b) Make r the subject of the formula $A = \pi r^2$

$r =$ ..... **(2)**

[Question 2: 4 marks]

3 At a bus station, a number 7 bus leaves every 18 minutes.

A number 12 bus leaves every 24 minutes.

A number 7 bus and a number 12 bus both leave the bus station at 9:15 am.

When is the next time that a number 7 bus and a number 12 bus both leave at the same time?

..... **(3)**

[Question 3: 3 marks]

4 Ravi wants to find out how often the students at his school use the school library.
There are 1200 students at his school.
One lunchtime, Ravi asks 15 students who are in the library how often they use it.
Give two reasons why Ravi's sample may not be a good sample.

.....

.....

.....

..... **(2)**

[Question 4: 2 marks]

5 Lucy makes green paint by mixing blue paint and yellow paint in the ratio 3 : 8
She has 2.4 litres of blue paint and 5.6 litres of yellow paint.
Work out the greatest amount of green paint Lucy can make.
You must show your working.

..... litres **(3)**

[Question 5: 3 marks]

6 Some students from two athletics clubs, the Harriers and the Rockets, run 400 metres.

Here are the times, in seconds, of 8 runners from the Rockets.

68.4 71.2 69.8 70.5 72.9 68.9 70.1 69.4

(a) Work out the median time and the range of the times for the Rockets.

median ..... seconds

range ..... seconds **(2)**

(b) For the runners from the Harriers, the median time is 71.3 seconds and the range is 2.8 seconds.

Make two comparisons between the times of the runners from the two clubs.

.....

.....

.....

..... **(2)**

[Question 6: 4 marks]

7 Jamal buys a new van for £24 500.

The value of the van depreciates by 14% each year.

Work out the value of the van after 3 years.

Give your answer correct to the nearest pound.

£ ..... **(3)**

[Question 7: 3 marks]

8 Nadia runs a half marathon.

The distance is 21.1 km.

Her time is 1 hour 52 minutes.

Work out Nadia's average speed in metres per second.

Give your answer correct to 2 decimal places.

..... m/s **(3)**

[Question 8: 3 marks]

9 A water jug is in the shape of a cylinder.

The radius of the base is 9 cm and the height is 25 cm.

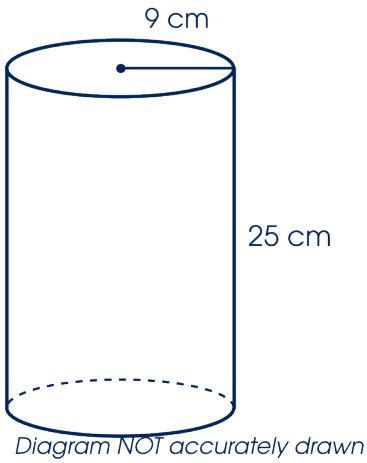


Diagram NOT accurately drawn

(a) Work out the volume of the jug.

Give your answer correct to 1 decimal place.

..... cm^3 **(2)**

(b) The jug is full of water.

Joe pours the water into glasses.

Each glass holds 250 ml.

How many glasses can Joe fill completely?

(1 ml = 1 cm^3)

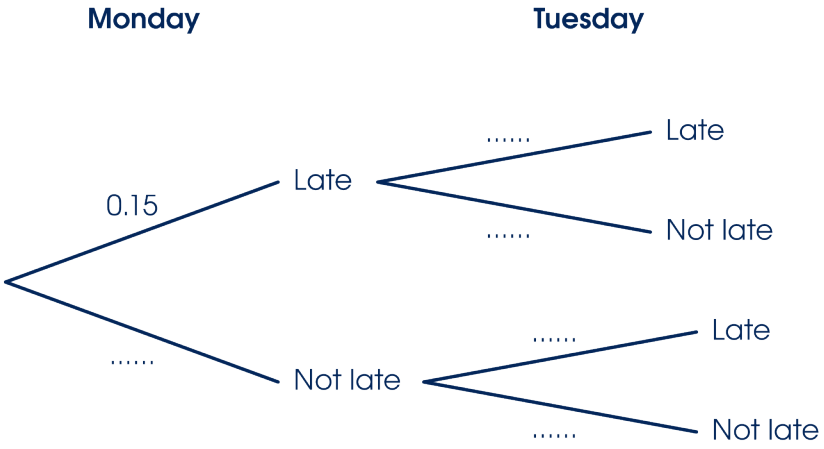
..... **(2)**

[Question 9: 4 marks]

10 The probability that Ellie's train is late on any day is 0.15

The train being late on Monday is independent of the train being late on Tuesday.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Ellie's train is late on exactly one of these two days.

..... **(2)**

[Question 10: 4 marks]

11 The diagram shows a wheelchair ramp.

The ramp is 6.2 m long and rises a vertical height of 0.75 m.



Diagram NOT accurately drawn

For safety, the angle the ramp makes with the horizontal must be less than 7°.

Is the ramp safe?

You must show how you get your answer.

.....

..... **(3)**

[Question 11: 3 marks]

12 At a café, 3 coffees and 2 muffins cost £11.35

2 coffees and 5 muffins cost £16.55

Work out the cost of one coffee and the cost of one muffin.

coffee £.....

muffin £..... **(4)**

[Question 12: 4 marks]

TOTAL FOR PAPER IS 40 MARKS