1st Class Maths

PREDICTED PAPER

Video Solutions

Candidate Surname	Other names

Centre Number	Candidate Number

Monday 7 November 2022

Morning (Time: 1 hours 30 minutes)

Mathematics

Paper 3 (Calculator)

Foundation Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pairs of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks

Student Self Reflection

Topics/Question I need to ***revise***

Topics/Questions I need to ***learn***

Answer ALL questions

Write your answers in the spaces provided

You must write down all the stages in your working.

1 Write $\frac{3}{10}$ as a decimal

.....

(Total for Question 1 is 1 mark)

2 Write the value of the number 8 in 4829

.....

(Total for Question 2 is 1 mark)

3 Write the following numbers in order of size.
Start with the smallest number.

0.202 0.22 0.02 0.2

.....

(Total for Question 3 is 1 mark)

4 Here is a list of numbers

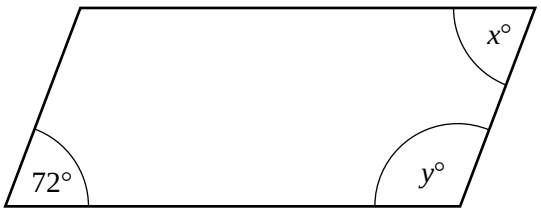
2 5 6 8 12 20 24 30

Write down two different multiples of 12 from the list.

..... and .....

(Total for Question 4 is 2 marks)

5 Here is a parallelogram.



(a) Work out the size of the angle marked x.

.....°

(1)

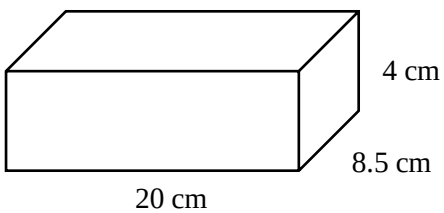
(b) Work out the size of the angle marked y.

.....°

(1)

(Total for Question 5 is 2 marks)

6 Here is a cuboid



Work out the volume of the cuboid.

.....

(Total for Question 6 is 3 marks)

7 Umar has 128 coins in his moneybox.

$\frac{1}{4}$ of his coins are 50p coins

77 of his coins are 20p coins
The rest are 10p coins.

Work out the total value the coins in Umar's moneybox.

£ .....

(Total for Question 7 is 4 marks)

8 Use your calculator to work out $\frac{6.5^3}{\sqrt{20} - 2}$

(a) Write down all the figures on your calculator display.

.....

(2)

(b) Write your answer to part (a) correct to 2 decimal places.

.....

(1)

(Total for Question 8 is 3 marks)

9 Here are the first 5 terms of a sequence.

7 12 17 22 27

(a) (i) Explain why 55 is not a term in this sequence

.....

.....

.....

(1)

A term in the sequence is equal to 77

(ii) Which term?

.....

(1)

A different sequence is given by the expression 6n + 4

(b) Work out the 8th term of the sequence.

.....

(1)

(Total for Question 9 is 3 marks)

10 3 kg of fish costs £13.18

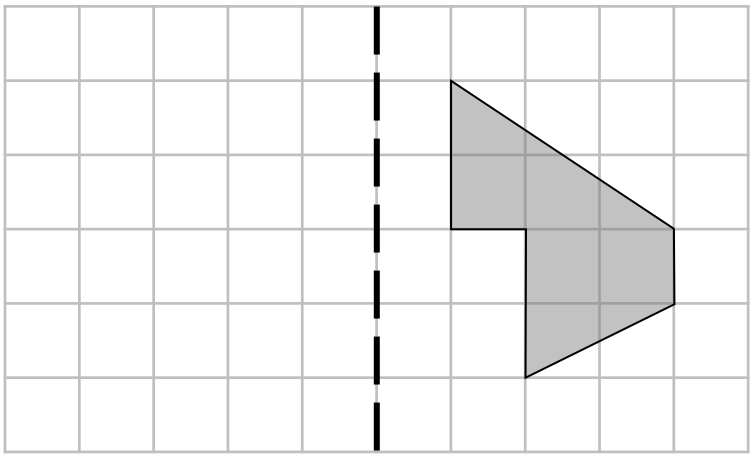
Work out the cost of 7.5 kg of fish.

£.....

(Total for Question 10 is 2 marks)

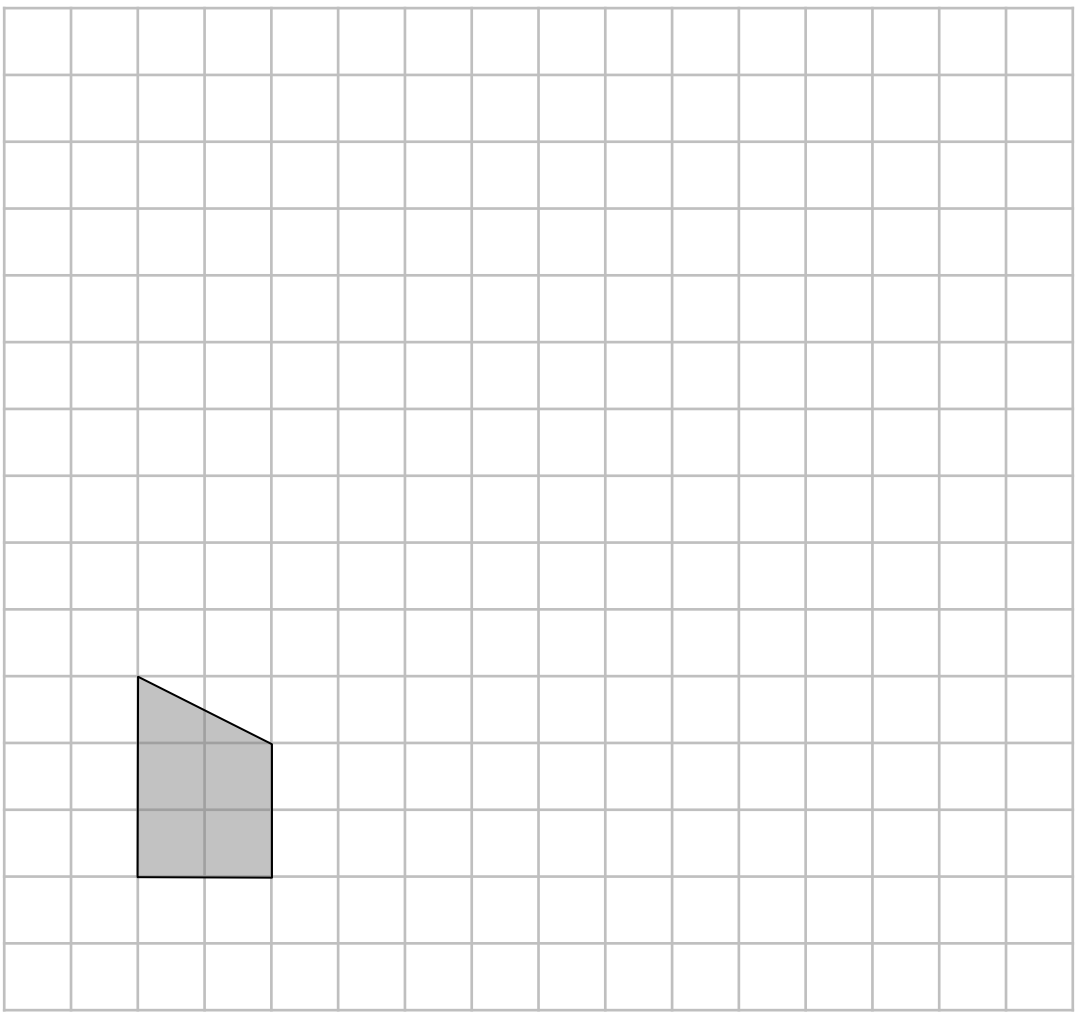
11 (a) Reflect the shape in the mirror line

mirror line



(2)

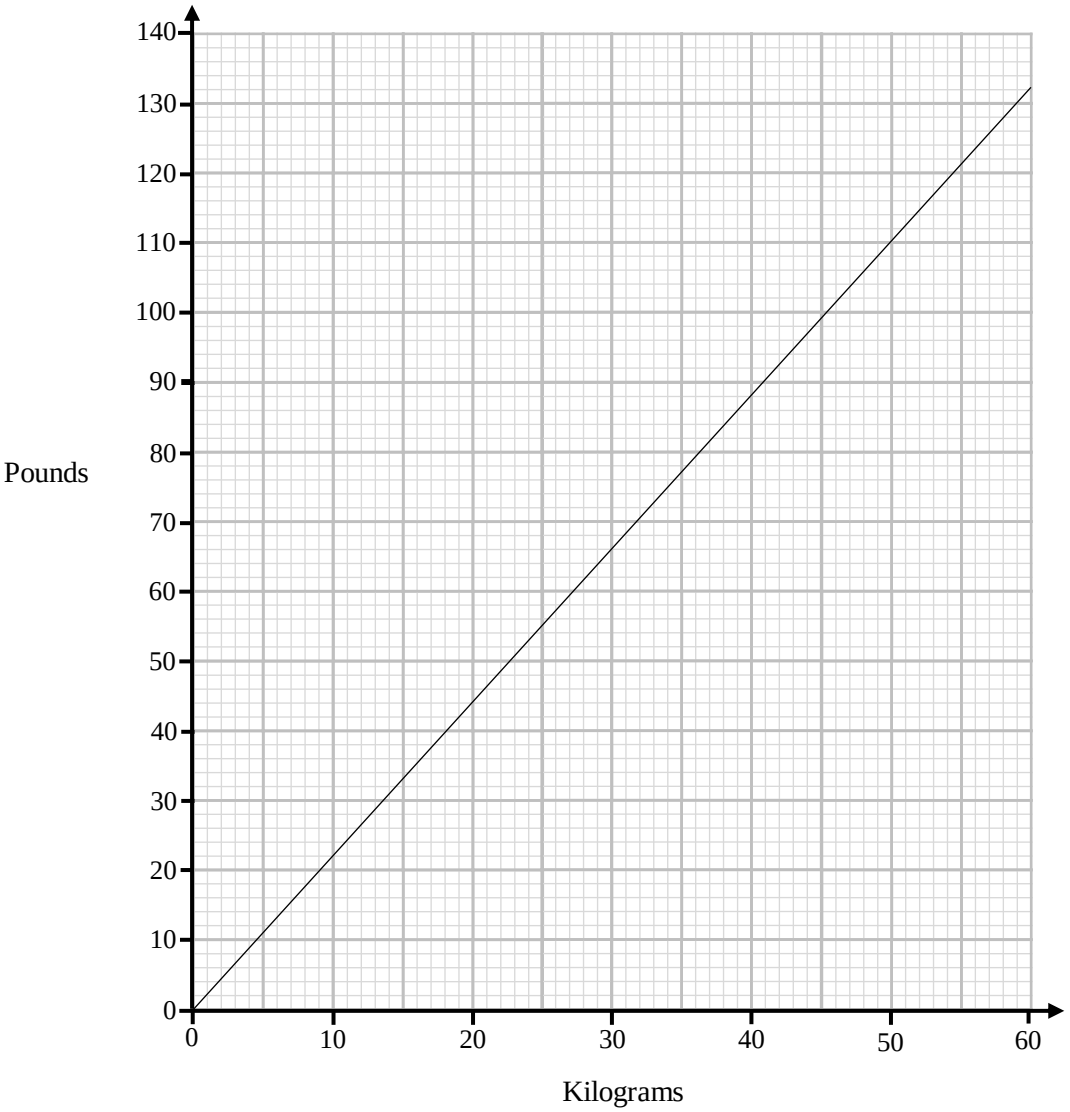
(b) On the grid below, draw an enlargement of the shaded shape, with a scale factor of 2



(2)

(Total for Question 11 is 4 marks)

12 You can use this graph to change between pounds and kilograms.



(a) Change 29 kg into pounds.

..... pounds

(1)

A washing machine weighs 13 stones 2 pounds.
1 stone = 14 pounds.

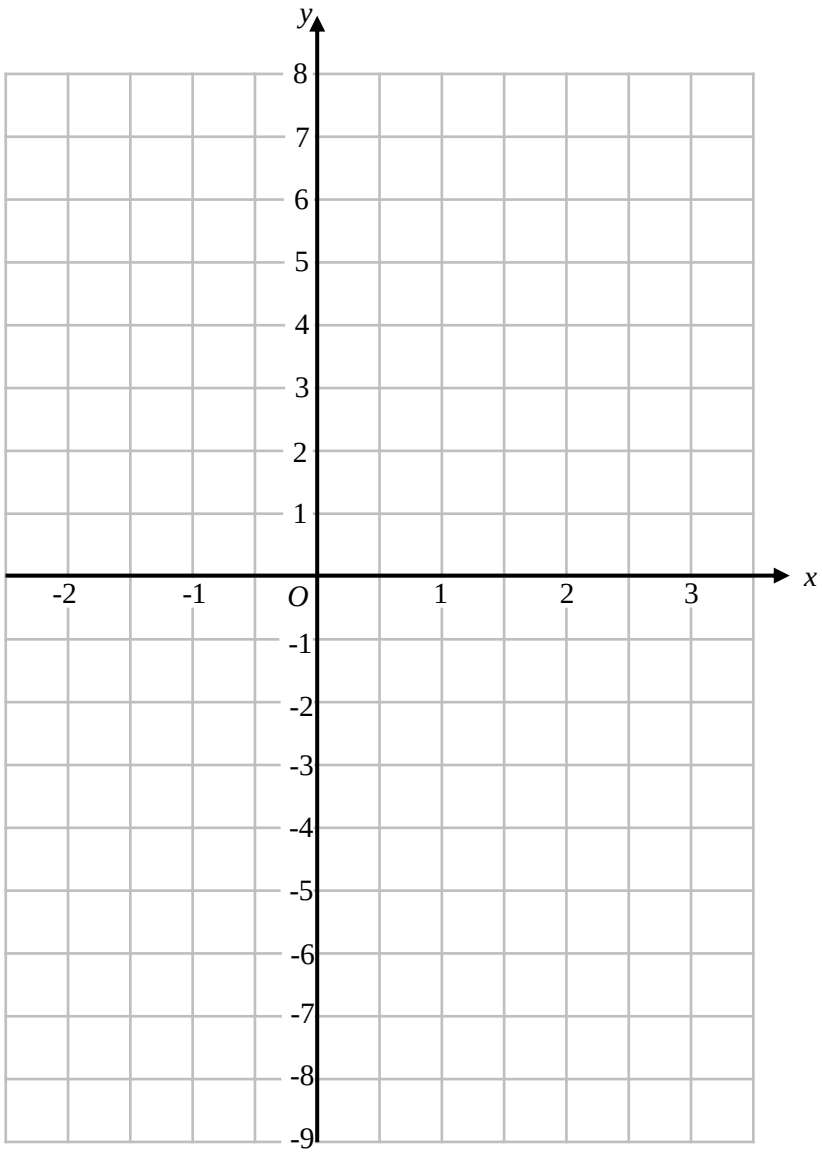
(b) Calculate the weight of the washing machine in kilograms.

..... kilograms

(3)

(Total for Question 12 is 4 marks)

13 (a) On the grid below, draw the graph of $y = 3x - 2$ for values of x from -2 to 3



(3)

(b) Does the point with coordinates (9, 25) lie on the line $y = 3x - 2$?
You must show how you get your answer.

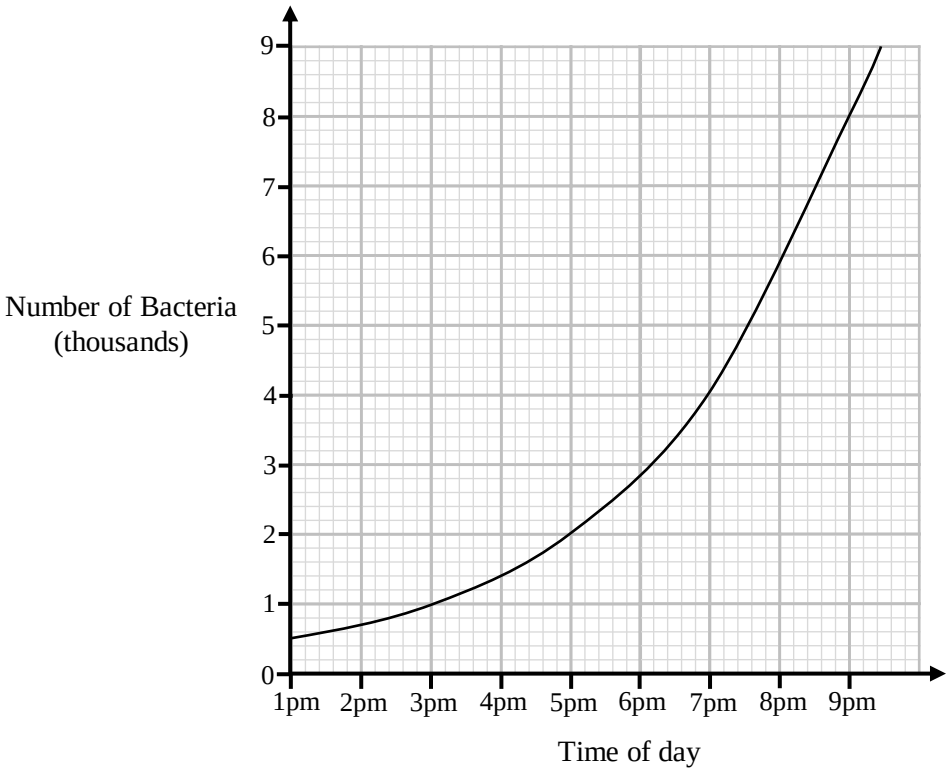
.....

.....

(1)

(Total for Question 13 is 4 marks)

14 The number of bacteria in a sample is recorded at different times during a day.



(a) Work out how many bacteria were in the sample a 1pm.

.....

(1)

The number of bacteria in the sample doubles every k hours.

(b) Work out the value of k.

k = ...

(1)

(Total for Question 14 is 2 marks)

15 Gayle drives 192 miles in 4 hours.

(a) What is her average speed?

..... mph

(2)

1 mile ≈ 1.6 kilometres
David drives at an average speed of 54 km/h

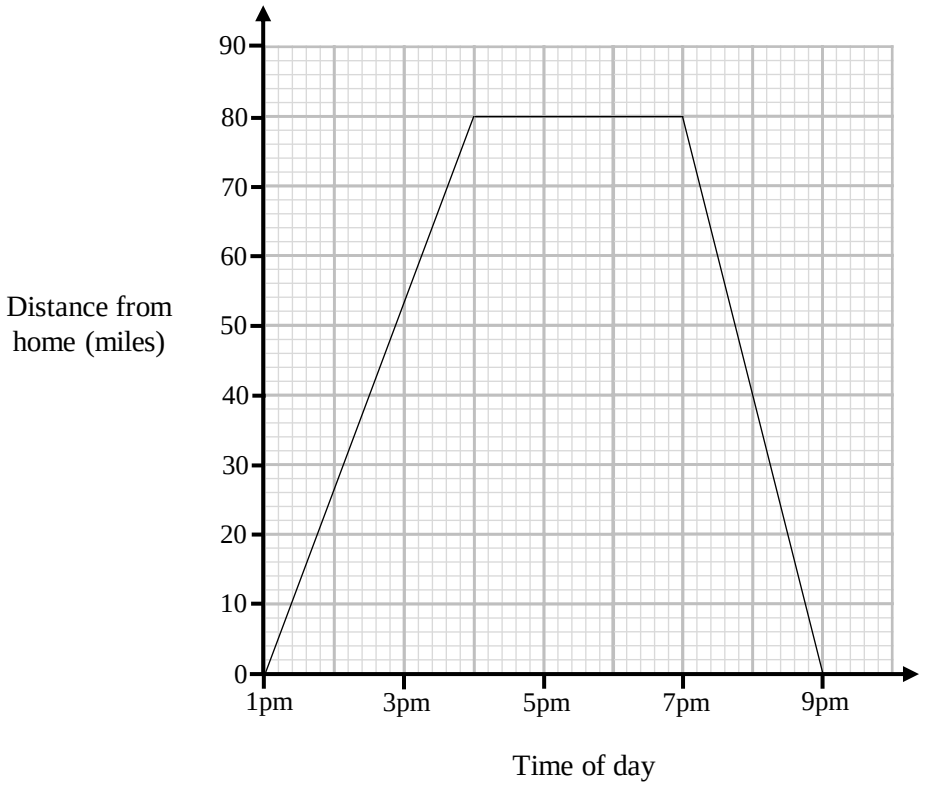
(b) Use this to convert David's speed into miles per hour.

..... mph

(2)

(Total for Question 15 is 4 marks)

16 Owen drove from his home to a park.
He stayed at the park and then drove home.



(a) How far does Owen live from the park?

..... miles

(1)

(b) How many minutes did Owen spend at the park?

..... minutes

(1)

(c) What was Owen's average speed on the journey home?

..... mph

(2)

(Total for Question 16 is 4 marks)

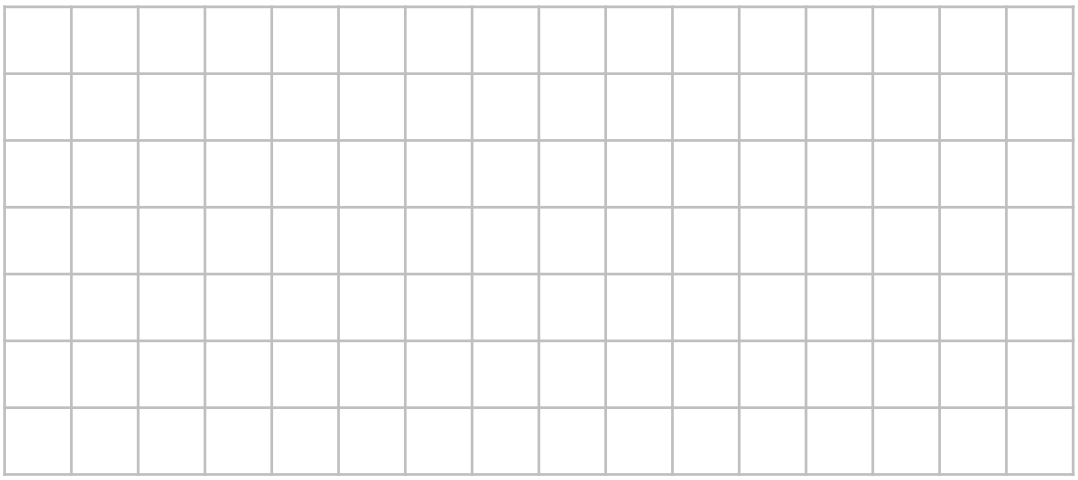
17 Here are two column vectors $\mathbf{a} = \begin{pmatrix} 5 \\ -3 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$

(a) Work out $\mathbf{a} + 3\mathbf{b}$ as a column vector.

$\begin{pmatrix} \ldots\ldots \\ \ldots\ldots \end{pmatrix}$

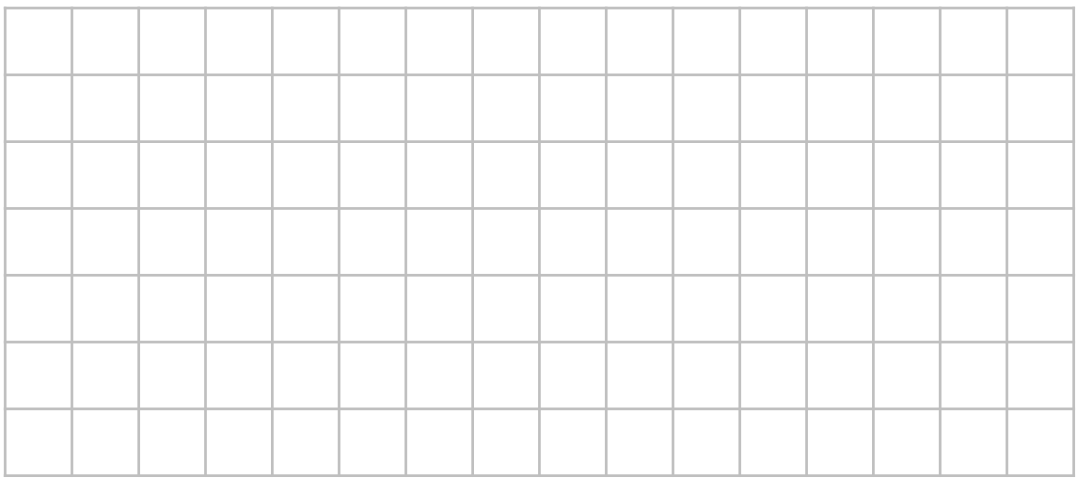
(2)

(b) On the grid below draw and label the vector $\mathbf{a}$



(1)

(c) On the grid below draw and label the vector $-\mathbf{2b}$



(1)

(Total for Question 17 is 4 marks)

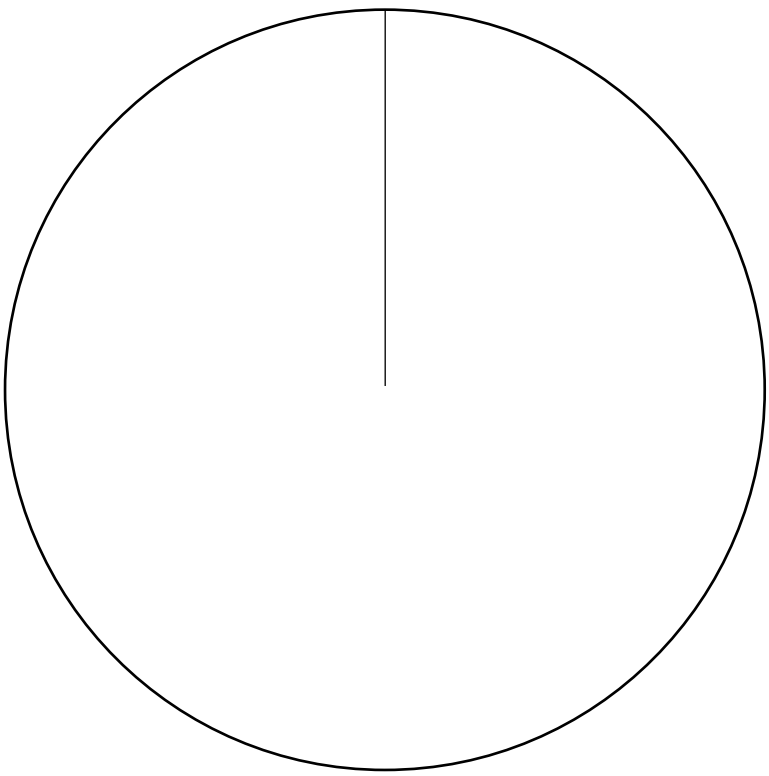
18 300 students were asked to select their favourite season.

$\frac{2}{5}$ of the students chose summer.

50 students chose autumn.

The same number of students chose spring as chose winter.

Draw a pie chart to show the favourite seasons of the 300 students.



(Total for Question 18 is 5 marks)

19 The table shows information about the time, t minutes, that 20 students spent revising.

Time (t minutes)	Frequency
$10 < t \leq 20$	1
$20 < t \leq 30$	8
$30 < t \leq 40$	6
$40 < t \leq 50$	5

Work out an estimate for the mean time spent revising.

..... minutes

(Total for Question 19 is 3 marks)

20 Make k the subject of the formula $P = 4k - m$

.....

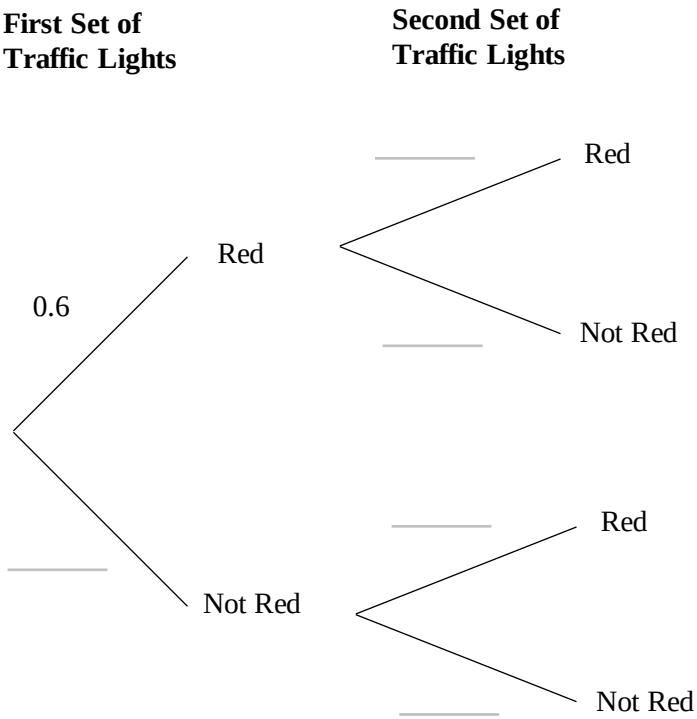
(Total for Question 20 is 2 marks)

21 Arslan drives through two sets of traffic lights on his way to work.

The probability that the first set of traffic lights is red when he arrives there is 0.6

The probability that the second set of traffic lights is red when he arrives there is 0.2

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that both of the sets of traffic lights are red when he arrives at them.

.....

(2)

(Total for Question 21 is 4 marks)

22 (a) Work out $(3.9 \times 10^9) \times (6.2 \times 10^{-13})$
Give your answer as an ordinary number.

.....

(2)

$m = 4 \times 10^2$
$n = 3.5 \times 10^{-1}$

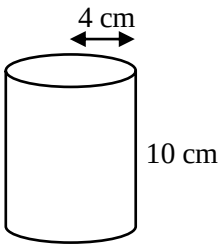
(b) Write the ratio $m : n$ give your answer in simplest form.

.....

(3)

(Total for Question 22 is 5 marks)

23 Here is a cylinder.



Hannah says: "The volume of the cylinder is greater than 5 m^3 "

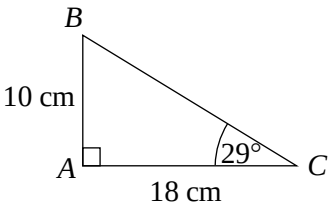
Is Hannah correct?
You must show working to support your answer.

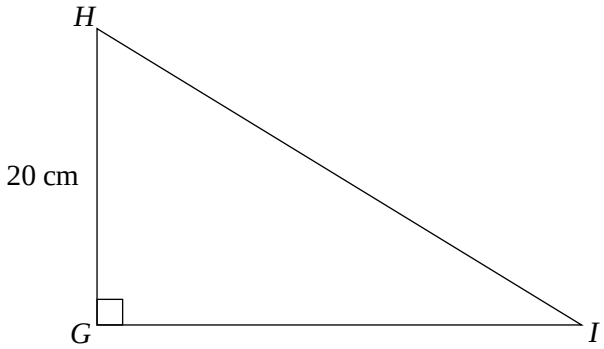
.....

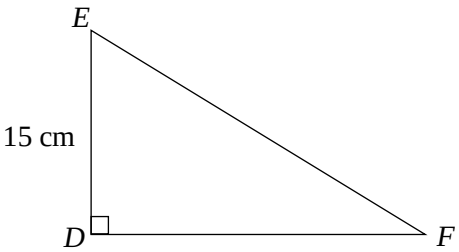
.....

(Total for Question 23 is 4 marks)

24







ABC, *DEF* and GHI are all similar triangles.

(a) Work out the length of *DF*

..... cm

(2)

(b) Work out the size of angle *GHI*

.....°

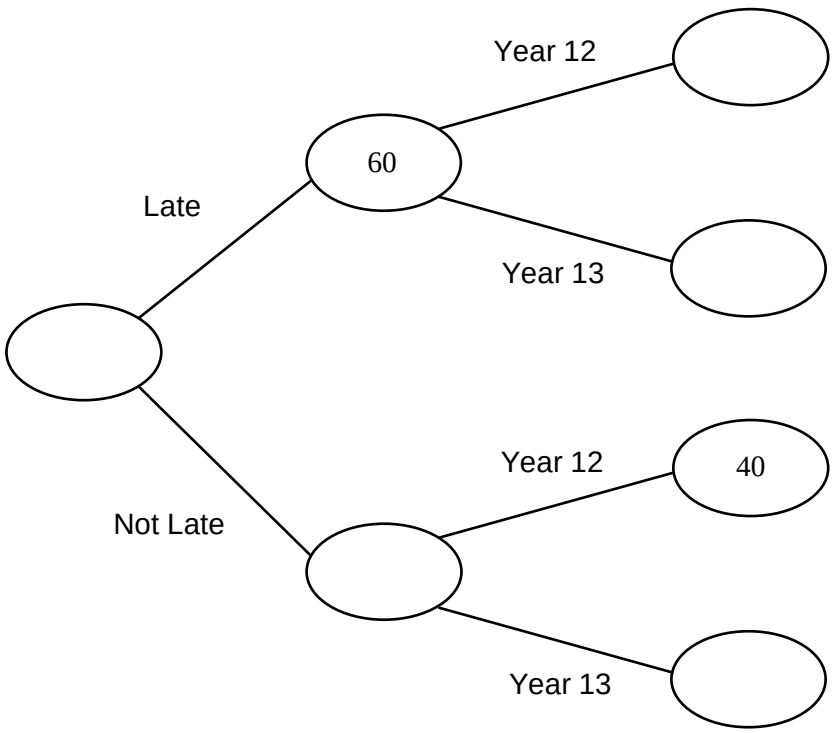
(2)

(Total for Question 24 is 4 marks)

25 The frequency shows information about students in a college.

60 students were late to school
40 of the students who were not late were in year 12.
The ratio of students who were late to students who were not late is 1:2
The ratio of year 12 students who were late to year 13 students who were late is 3:2

Use this information to complete the frequency tree.



(Total for Question 25 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS