Pearson

WEEK 2 TASKS

(Higher 4-6)

Make sure you check your answers and show all your working out. Try to make your work is well laid out and easy to read – if the examiner cannot understand what you have written they cannot award you any marks.

Have we said, “Show your working out”?

WEEK 2 TASK 1

Estimated completion time = 25 minutes.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 There are only blue cubes, red cubes and yellow cubes in a box.

The table shows the probability of taking at random a blue cube from the box.

Colour	blue	red	yellow
Probability	0.2		

The number of red cubes in the box is the same as the number of yellow cubes in the box.

(*a*) Complete the table.

(2)

There are 12 blue cubes in the box.

(*b*) Work out the total number of cubes in the box.

.....

(2)

(Total for Question 1 is 4 marks)

2 Deon needs 50 g of sugar to make 15 biscuits.

She also needs
three times as much flour as sugar
two times as much butter as sugar

Deon is going to make 60 biscuits.

(*a*) Work out the amount of flour she needs.

..... g
(3)

Deon has to buy all the butter she needs to make 60 biscuits.
She buys the butter in 250 g packs.

(*b*) How many packs of butter does Deon need to buy?

.....
(2)

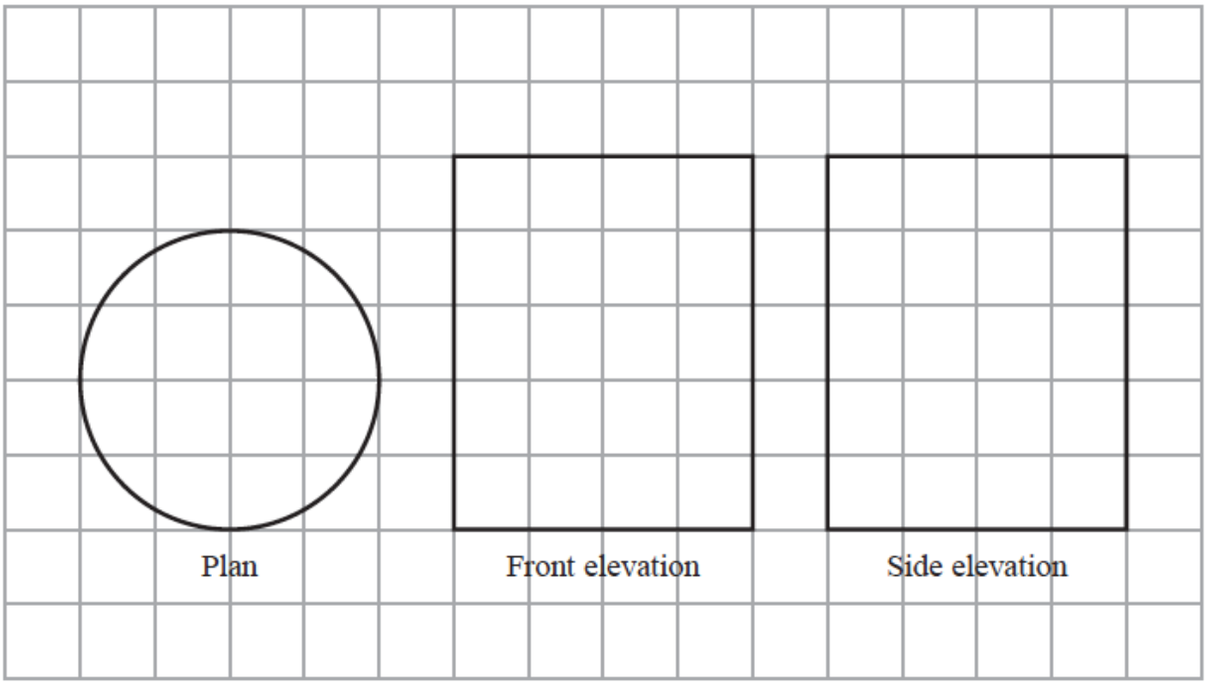
(Total for Question 2 is 5 marks)

3 Find the highest common factor (HCF) of 72 and 90

.....

(Total for Question 3 is 2 marks)

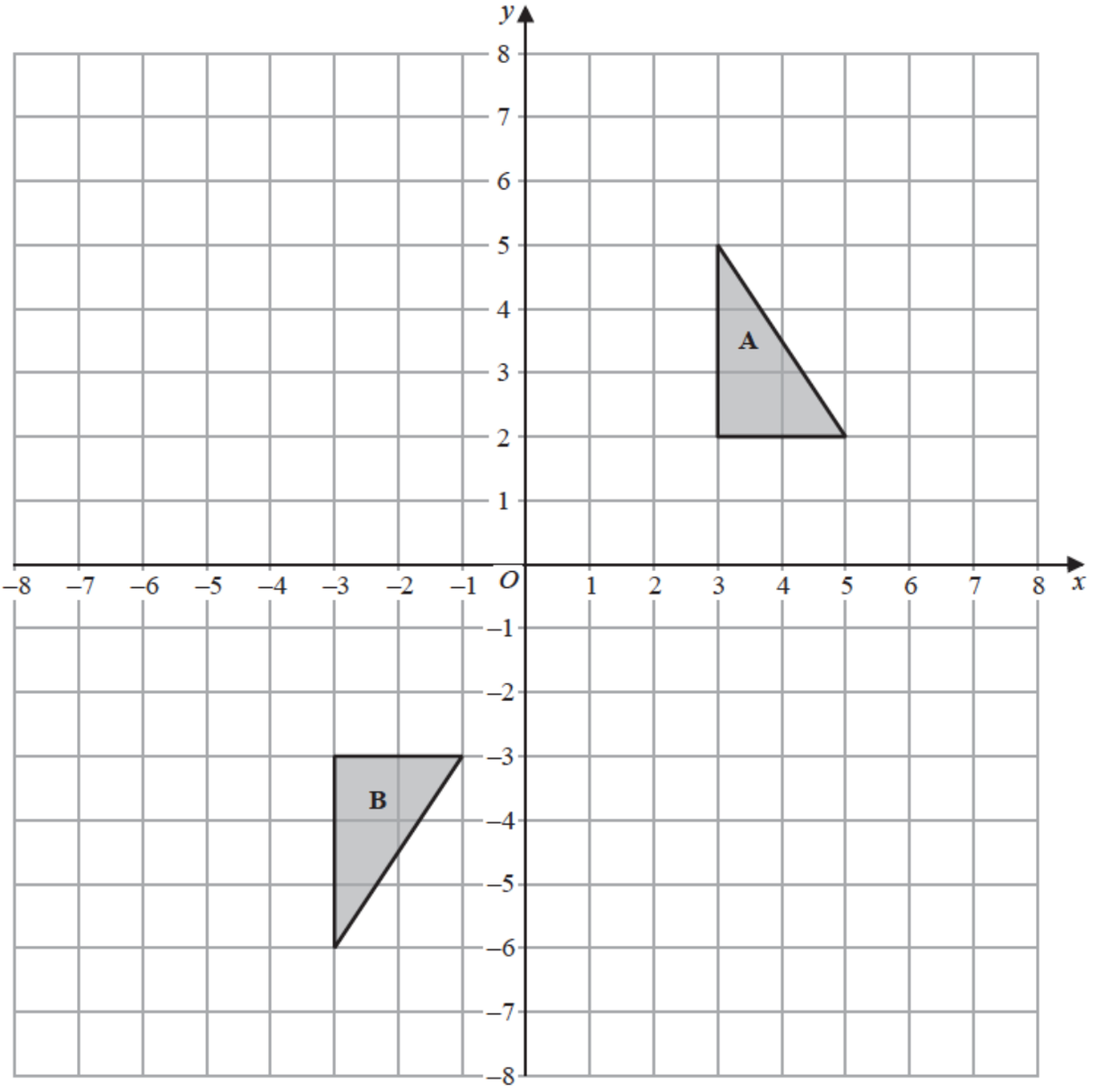
4 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.



In the space below, draw a sketch of the solid shape.
Give the dimensions of the solid on your sketch.

(Total for Question 4 is 2 marks)

5



Shape **A** can be transformed to shape **B** by a reflection in the x-axis followed by a translation $\begin{pmatrix} c \\ d \end{pmatrix}$

Find the value of c and the value of d.

c = ...

d = ...

(Total for Question 5 is 3 marks)

6 A shop sells packs of black pens, packs of red pens and packs of green pens.

There are
2 pens in each pack of black pens
5 pens in each pack of red pens
6 pens in each pack of green pens

On Monday,

number of packs of black pens sold	:	number of packs of red pens sold	:	number of packs of green pens sold	= 7 : 3 : 4

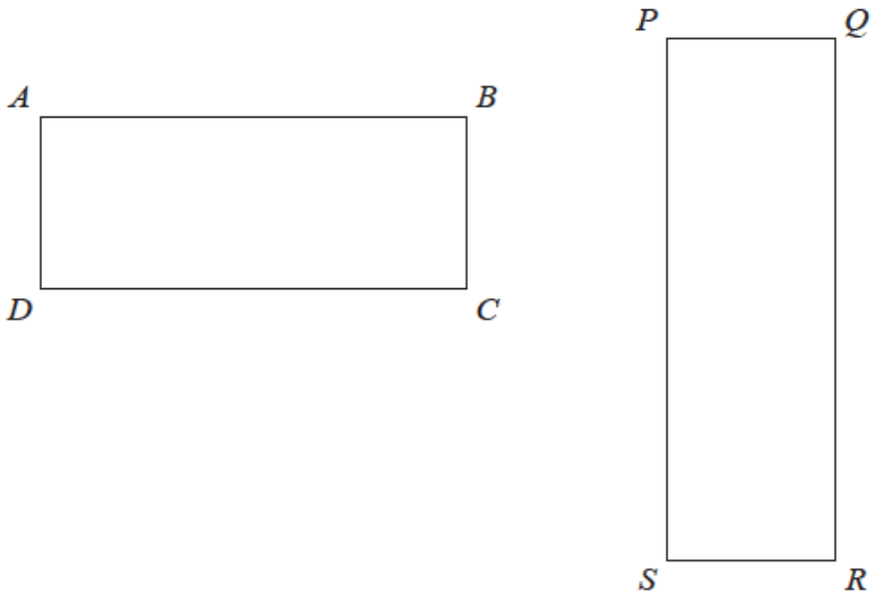
A total of 212 pens were sold.

Work out the number of green pens sold.

.....

(Total for Question 6 is 4 marks)

7 Here are two rectangles.



$QR = 10$ cm
$BC = PQ$

The perimeter of $ABCD$ is 26 cm
The area of $PQRS$ is 45 cm^2

Find the length of AB.

..... cm

(Total for Question 7 is 4 marks)

TOTAL FOR PAPER IS 24 MARKS

WEEK 2 TASK 2

Estimated completion time = 45 minutes.

Answer all questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 The table shows the number of books read by four people in one month.

Person	Number of books
Ximena	7
Martha	9
Kezia	1
Tabby	5

(*a*) Work out the median number of books.

.....

(2)

(*b*) Find the range.

.....

(1)

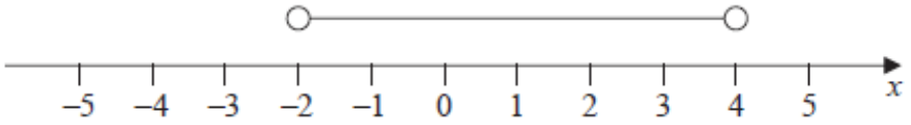
(*c*) On the grid, draw a bar chart to show the information in the table.

(3)

(Total for Question 1 is 6 marks)

***2** Jenna is asked to show the inequality $-3 < x \leq 4$ on a number line.

Here is her answer.



(*a*) Write down two mistakes Jenna has made.

1.....

.....

2.....

.....

(2)

(*b*) Work out the greatest integer that satisfies the inequality

$$5y - 7 < 16$$

.....

(2)

(Total for Question 2 is 4 marks)

***3** Lava flows from a volcano at a constant rate of 11.9 m^3/s

How many days does it take for 67 205 600 m^3 of lava to flow from the volcano?
Give your answer correct to the nearest day.

..... days

(Total for Question 3 is 3 marks)

4 Jenny invests £3000 for 6 years at y% simple interest per year.

At the end of the 6 years, Jenny has received a total of £450 in interest.

Work out the value of y.

y = ...

(Total for Question 4 is 3 marks)

---

5 120 boxes cost £6
270 bags cost £10

A bag is cheaper than a box.

How much cheaper?
Give your answer in pence correct to 1 decimal place.

.....p

(Total for Question 5 is 4 marks)

***6** Seija works at a weather station.
The table gives information about the temperature, T °C, at midday for each of 50 cities in the UK on Tuesday.

Temperature (T °C)	**Frequency**
$10 < T \leq 15$	2
$15 < T \leq 20$	8
$20 < T \leq 25$	13
$25 < T \leq 30$	21
$30 < T \leq 35$	6

(*a*) Calculate an estimate for the mean temperature.

.....°C
(3)

Seija says,

> "The median temperature is 22.5 °C because 22.5 is the middle number in the middle group."

(*b*) Is Seija correct?
Give a reason for your answer.

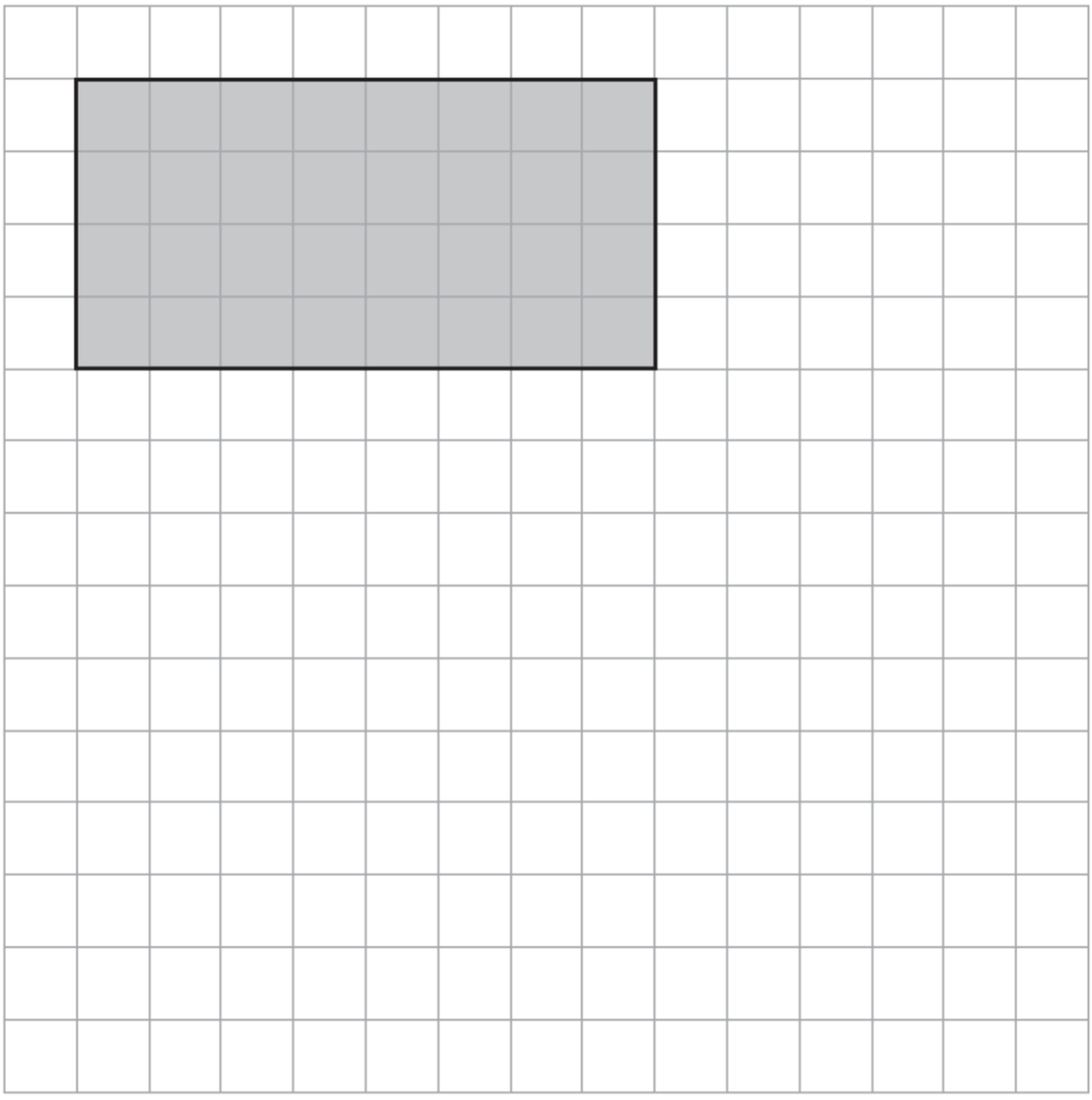
.....

.....

.....
(1)

(Total for Question 6 is 4 marks)

7 The front elevation of a cuboid is shown on the centimetre grid below.

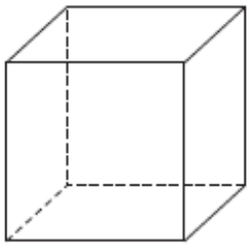


The volume of the cuboid is 224 cm^3

On the grid, draw the plan of the cuboid.

(Total for Question 7 is 3 marks)

***8** The diagram shows a solid cube placed on a horizontal table.



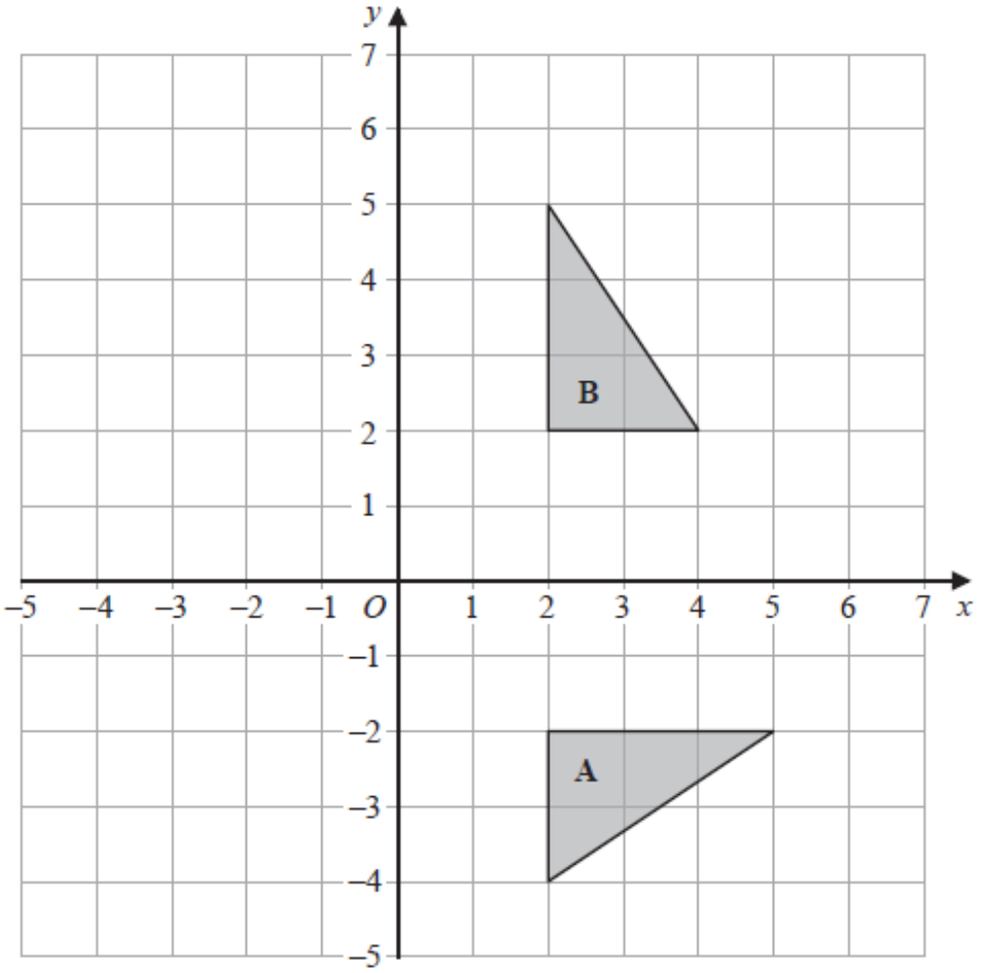
$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

The pressure on the table due to the cube is 3.5 newtons/cm^2
The force exerted by the cube on the table is 504 newtons.

Show that the total surface area of the cube is less than 900 cm^2

(Total for Question 8 is 3 marks)

9



Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

.....

.....

(Total for Question 9 is 2 marks)

***10** A and B are numbers such that

$$A = 2^2 \times 3^4 \times 7$$
$$B = 3^2 \times 7^2$$

(*a*) Find the highest common factor (HCF) of A and B.

.....

(1)

(*b*) Find the lowest common multiple (LCM) of A and B.

.....

(2)

(Total for Question 10 is 3 marks)

***11** It takes 14 hours for 5 identical pumps to fill a water tank.

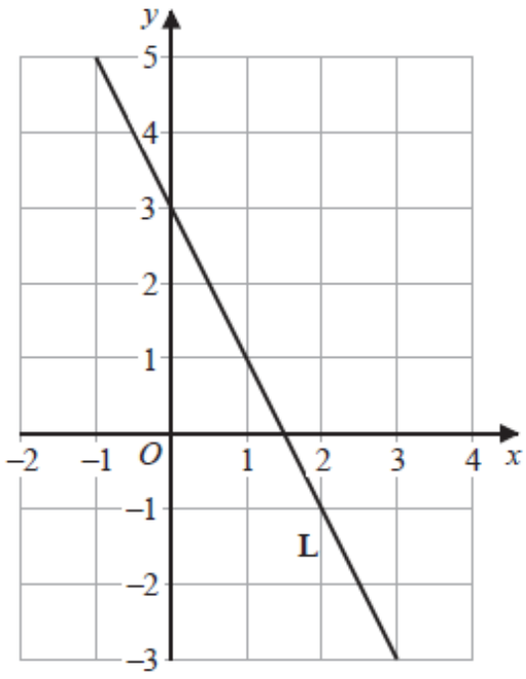
How many hours would it take 4 of these pumps to fill another water tank of the same size?

..... hours

(Total for Question 11 is 2 marks)

***12** The line **L** is shown on the grid.

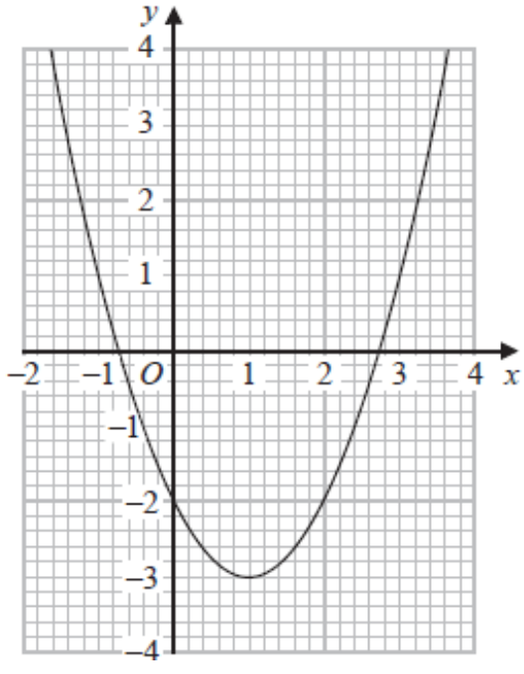
Find an equation for **L**.



.....

(Total for Question 12 is 3 marks)

***13** Here is the graph of $y = x^2 - 2x - 2$

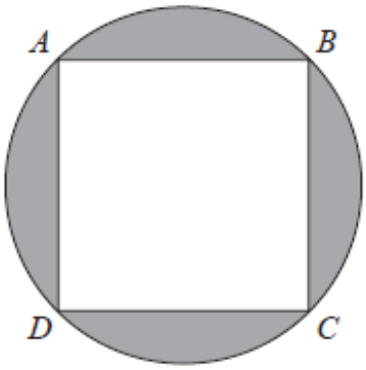


Write down an estimate for one of the roots of $x^2 - 2x - 2 = 0$

.....

(Total for Question 13 is 1 mark)

14 A, B, C and D are points on a circle such that $ABCD$ is a square.



The square $ABCD$ has sides of length 3.5 cm.

Calculate the circumference of the circle.
Give your answer correct to 1 decimal place.
You must show all your working.

..... cm

(Total for Question 14 is 4 marks)

TOTAL FOR PAPER IS 45 MARKS

WEEK 2 TASK 3

Estimated completion time = 25 minutes.

Answer ALL questions.

Write your answers in the spaces provided.

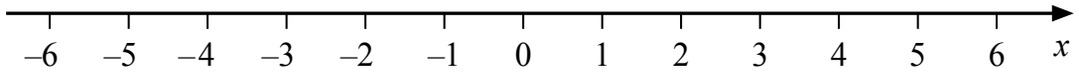
You must write down all the stages in your working.

1 (*a*) Solve $14n > 11n + 6$

.....

(2)

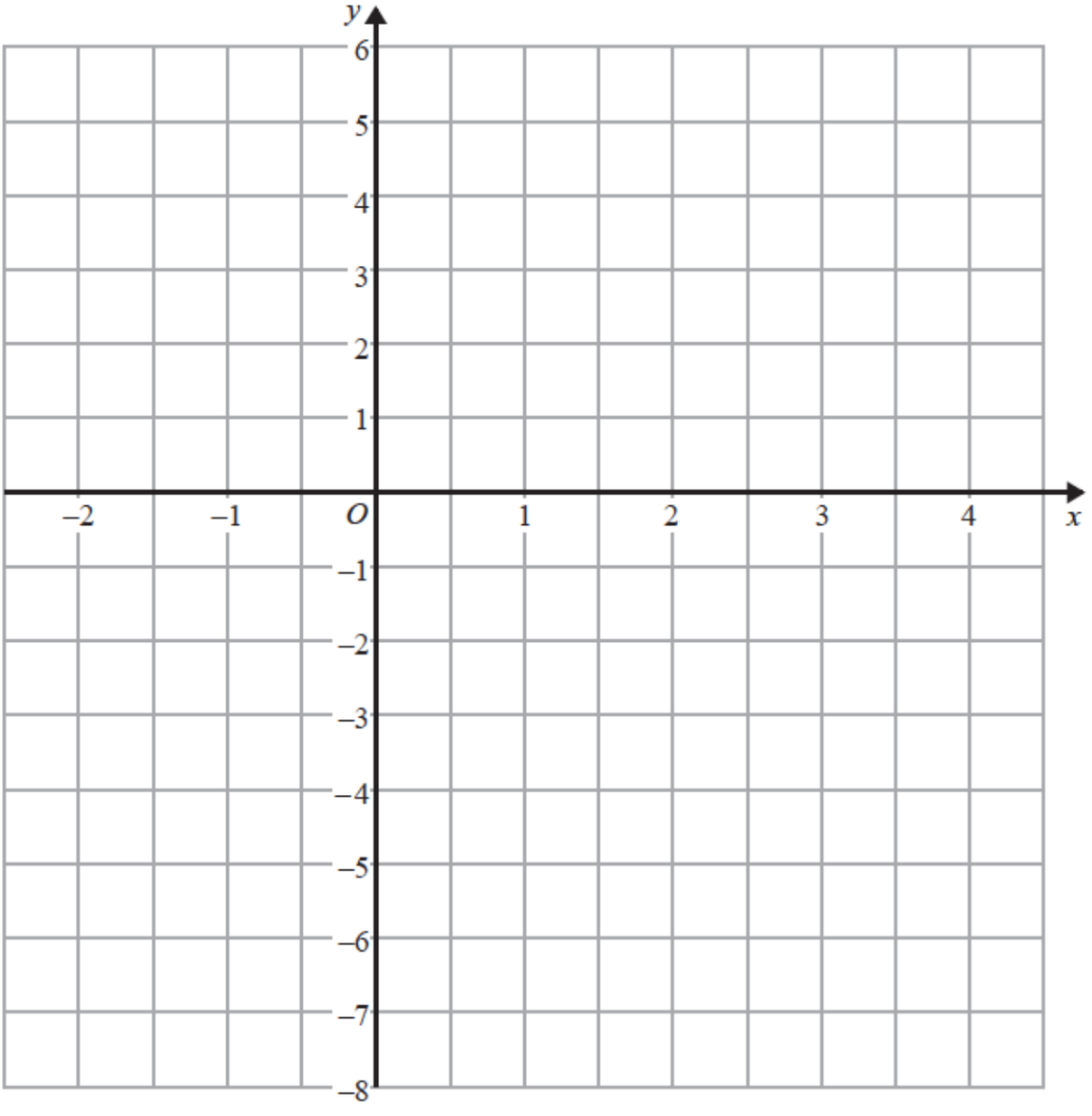
(*b*) On the number line below, show the set of values of x for which $-2 < x + 3 \leqslant 4$



(3)

(Total for Question 1 is 5 marks)

2 On the grid below, draw the graph of $y = 2x - 3$ for values of x from –2 to 4



(Total for Question 2 is 3 marks)

3 Hannah is planning a day trip for 195 students.

She asks a sample of 30 students where they want to go.
Each student chooses one place.

The table shows information about her results.

Place	Number of students
Theme Park	10
Theatre	5
Sports Centre	8
Seaside	7

(i) Work out how many of the 195 students you think will want to go to the Theme Park.

.....

(2)

(ii) State any assumption you made **and** explain how this may affect your answer.

.....

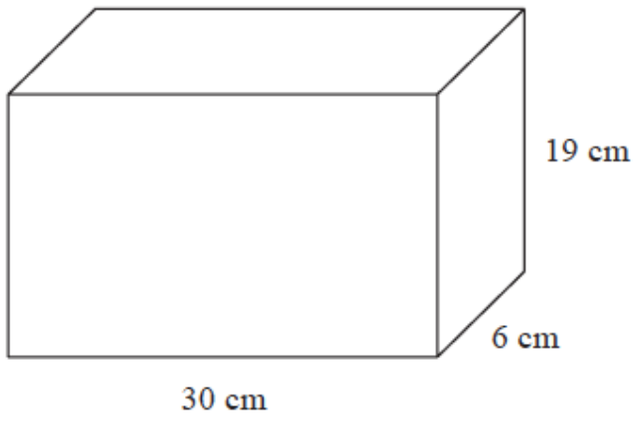
.....

.....

(1)

(Total for Question 3 is 3 marks)

4 A container is in the shape of a cuboid.



The container is $\frac{2}{3}$ full of water.

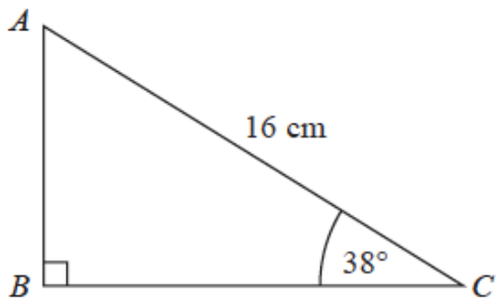
A cup holds 275 m*l* of water.

What is the greatest number of cups that can be completely filled with water from the container?

.....

(Total for Question 4 is 4 marks)

5 *ABC* is a right-angled triangle.



Calculate the length of *AB*.
Give your answer correct to 2 decimal places.

.....cm

(Total for Question 5 is 2 marks)

---

6 Sally used her calculator to work out the value of a number *y*.

The answer on her calculator display began

8.3

Complete the error interval for *y*.

..... $\leqslant y <$ .....

(Total for Question 6 is 2 marks)

---

7 £360 is shared between Abby, Ben, Chloe and Denesh.

The ratio of the amount Abby gets to the amount Ben gets is 2 : 7

Chloe and Denesh each get 1.5 times the amount Abby gets.

Work out the amount of money that Ben gets.

£.....

(Total for Question 7 is 4 marks)

27/8 (*a*) Write 0.00562 in standard form.

.....

(1)

(*b*) Write 1.452×10^3 as an ordinary number.

.....

(1)

(Total for Question 8 is 2 marks)

TOTAL FOR PAPER IS 25 MARKS

WEEK 2 TASK 4

Estimated completion time = 30 minutes.

Answer all questions.
Write your answers in the spaces provided.
You must write down all the stages in your working.

***1** (a) Write down the value of 5^0

.....

(1)

(*b*) Write $\frac{2^5 \times 2^4}{2^3}$ in the form 2^n where n is an integer.

.....

(2)

(Total for Question 1 is 3 marks)

***2** (*a*) Write 156 as a product of its prime factors.

.....

(2)

(*b*) Find the highest common factor (HCF) of 156 and 130

.....

(2)

(Total for Question 2 is 4 marks)

---

3 The menu in a restaurant has starters, main courses and desserts.

There are 5 starters.
There are 12 main courses.
There are x desserts.

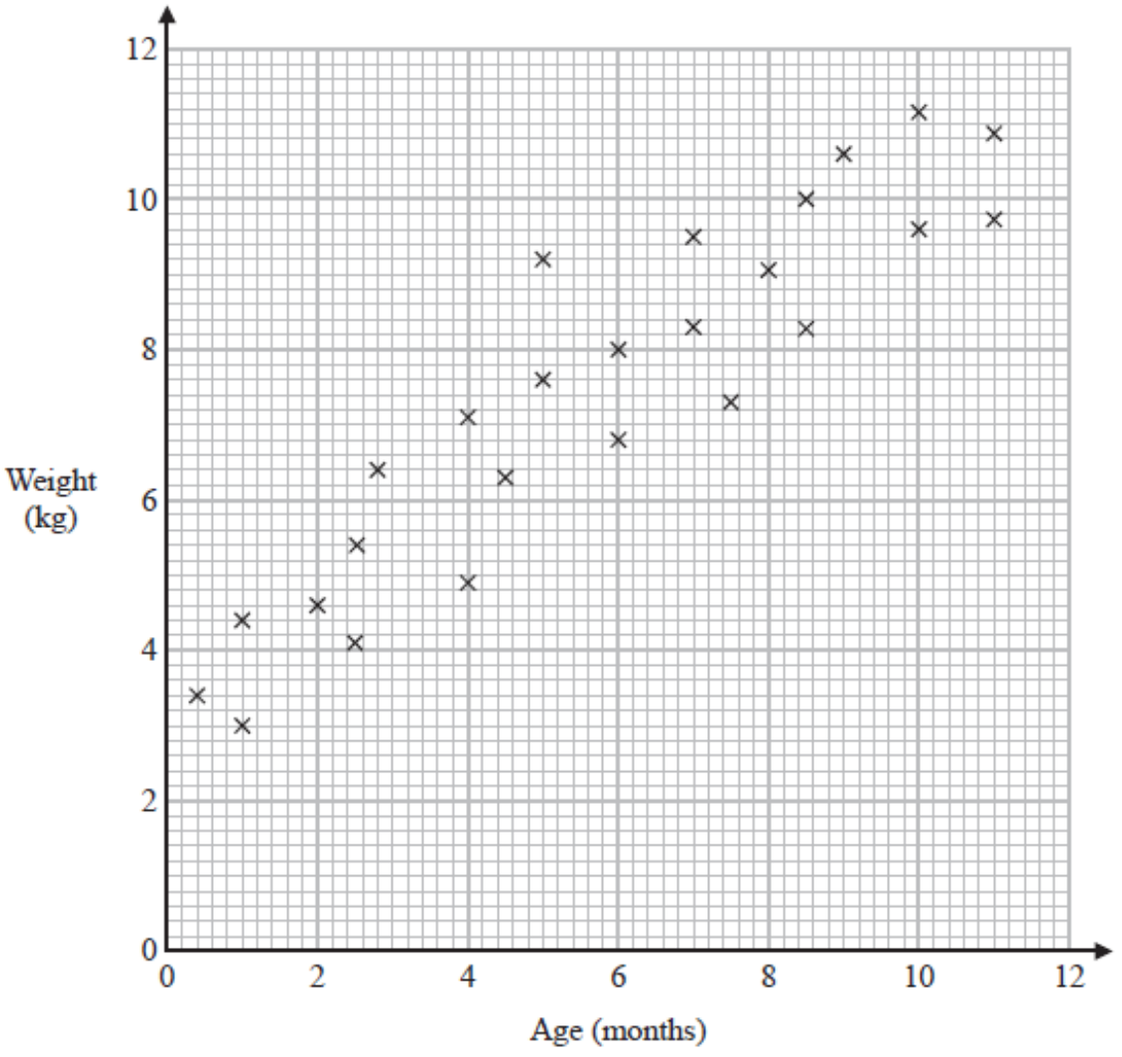
There are 420 different ways to choose one starter, one main course and one dessert.

Work out the value of x.

$x =$ .....

(**Total for Question 3 is 2 marks)**

***4** The scatter graph shows information about the ages and weights of some babies.



(*a*) Describe the relationship between the age and the weight of the babies.

.....

.....

.....

(1)

Another baby has a weight of 5.8 kg

(*b*) Using the scatter graph, find an estimate for the age of this baby.

..... months

(2)

(Total for Question 4 is 3 marks)

***5** Work out $7\frac{3}{8} - 2\frac{1}{2}$

Give your answer as a mixed number.

.....

(Total for Question 5 is 3 marks)

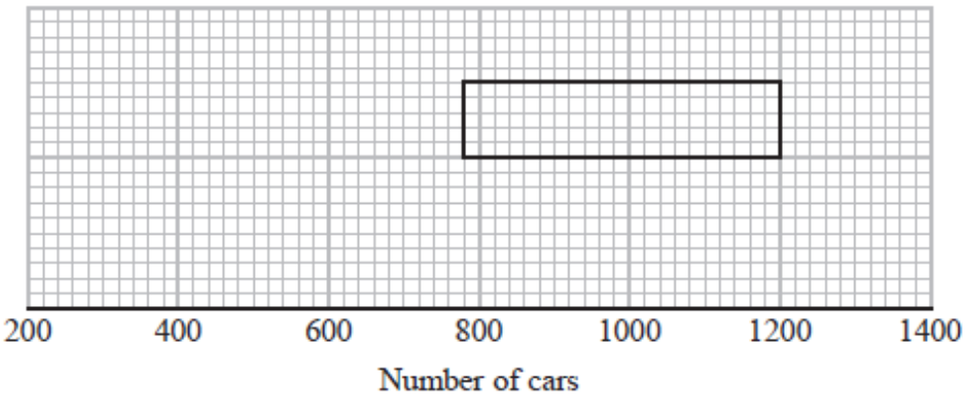
***6** Work out 6.3×2.4

.....

(Total for Question 6 is 3 marks)

7 Alice recorded the number of cars going into a village on each of 80 days.
The incomplete table and the incomplete box plot give information about her results.

	Number of cars
Least number	300
Lower quartile	
Median	900
Upper quartile	
Range	1000



(i) Use the information in the table to complete the box plot.

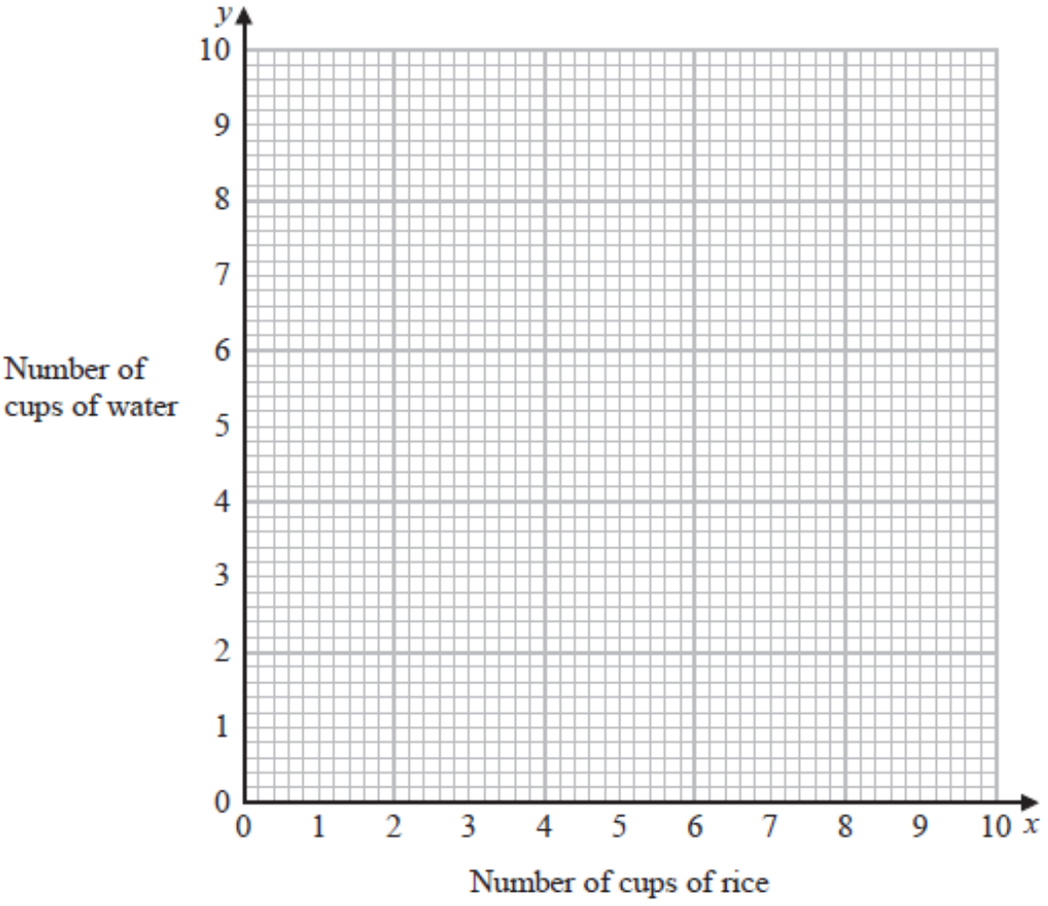
(ii) Use the information in the box plot to complete the table.

(Total for Question 7 is 3 marks)

8 To cook rice

the number of cups of rice (x) : the number of cups of water (y) = 4 : 5

Use this information to draw a graph to show the relationship between the number of cups of rice and the number of cups of water needed to cook rice.



(Total for Question 8 is 2 marks)

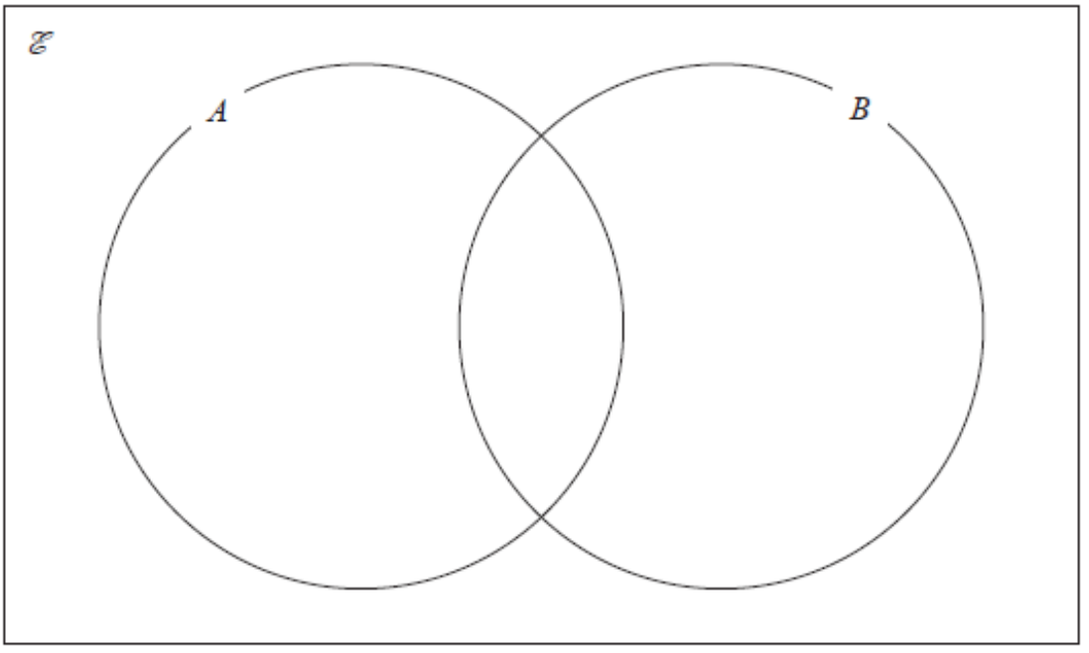
***9** Work out 8.46 ÷ 0.15

.....

(Total for Question 9 is 3 marks)

***10** $\mathscr{E}$ = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
A = {odd numbers}
B = {square numbers}

Complete the Venn diagram for this information.



((Total for Question 10 is 3 marks)

***11** The price of a holiday increases by 20%
This 20% increase adds £240 to the price of the holiday.

Work out the price of the holiday before the increase.

£.....

(Total for Question 11 is 2 marks)

TOTAL FOR PAPER IS 31 MARKS

WEEK 2 TASK 5

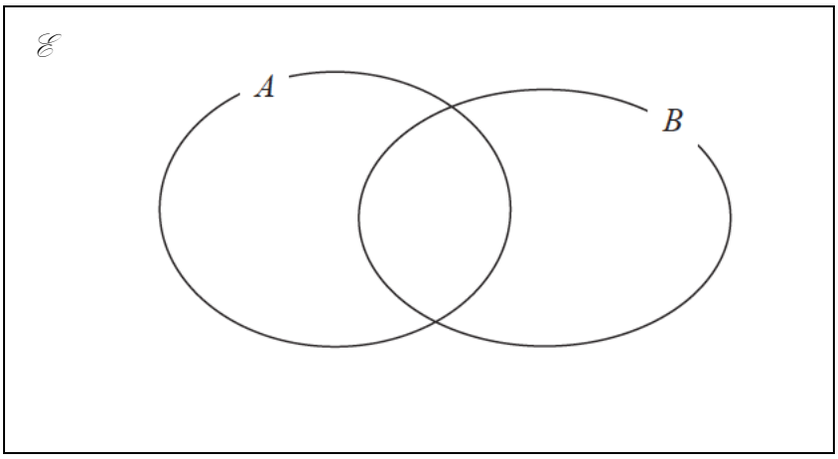
Estimated completion time = 25 minutes.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 $\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
$A = \{1, 5, 6, 8, 9\}$
$B = \{2, 6, 9\}$



(*a*) Complete the Venn diagram to represent this information.

(3)

A number is chosen at random from the universal set $\mathscr{E}$.

(*b*) Find the probability that the number is in the set $A \cup B$

.....

(2)

(Total for Question 1 is 5 marks)

2 Katy invests £200 000 in a savings account for 4 years.
The account pays compound interest at a rate of 1.5 % per annum.

Calculate the total amount of interest Katy will get at the end of 4 years.

£.....

(Total for Question 2 is 3 marks)

3 The table shows information about the heights of 80 plants.

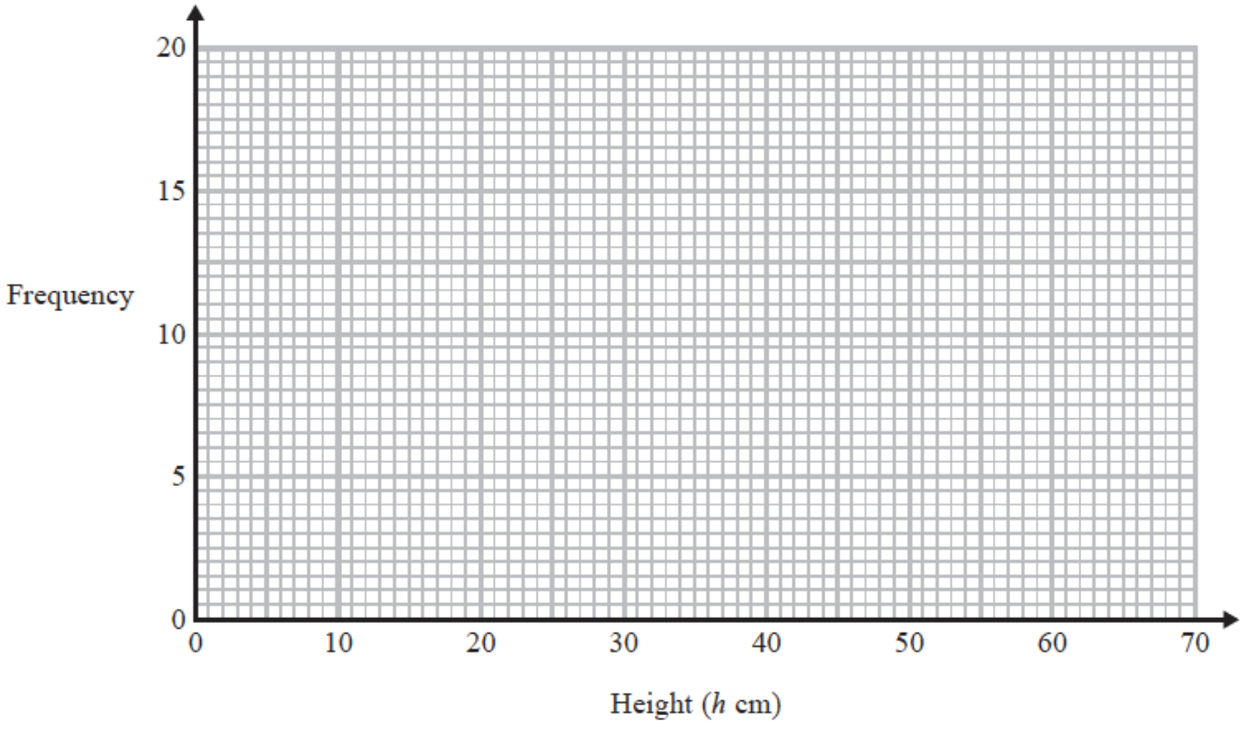
Height (h cm)	**Frequency**
$10 < h \leqslant 20$	7
$20 < h \leqslant 30$	13
$30 < h \leqslant 40$	14
$40 < h \leqslant 50$	12
$50 < h \leqslant 60$	16
$60 < h \leqslant 70$	18

(a) Find the class interval that contains the median.

.....

(1)

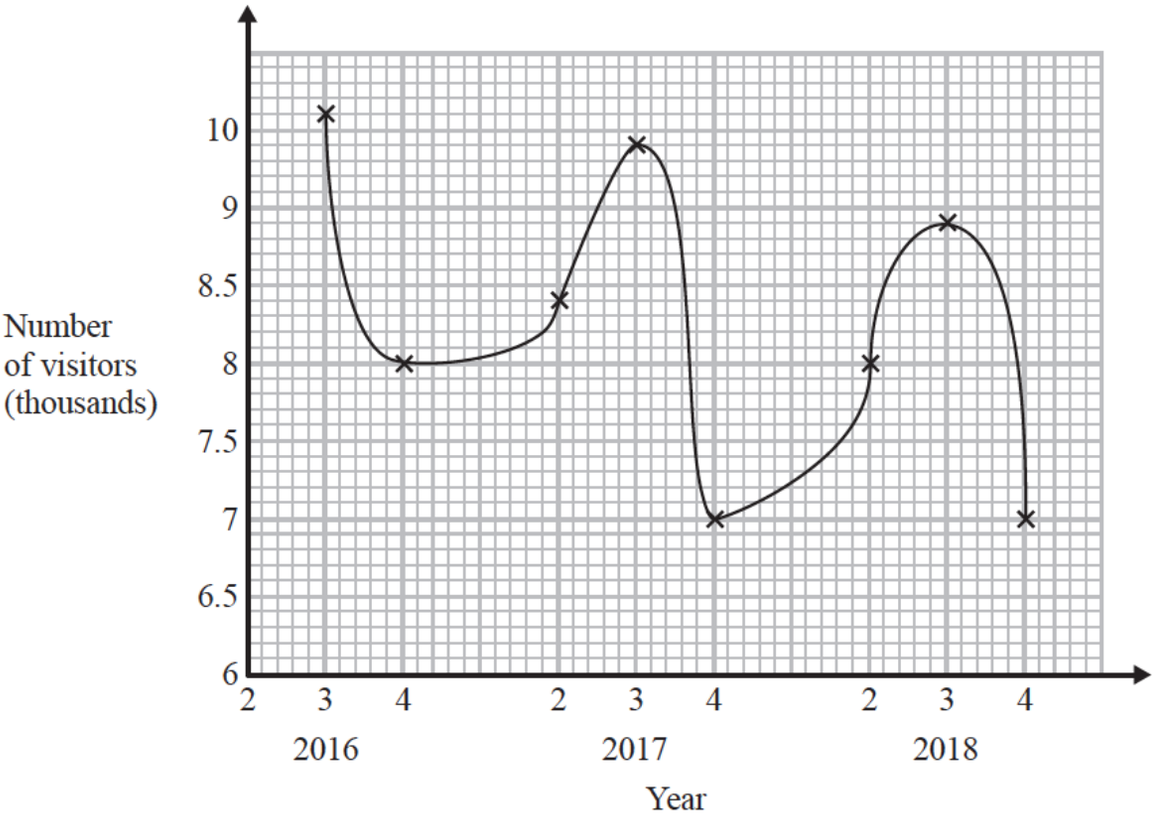
(b) On the grid, draw a frequency polygon for the information in the table.



(2)

(Total for Question 3 is 3 marks)

4 Sean has drawn a time series graph to show the numbers, in thousands, of visitors to a fun park.



Write down two things that are wrong or could be misleading with this graph.

1 .....

.....

.....

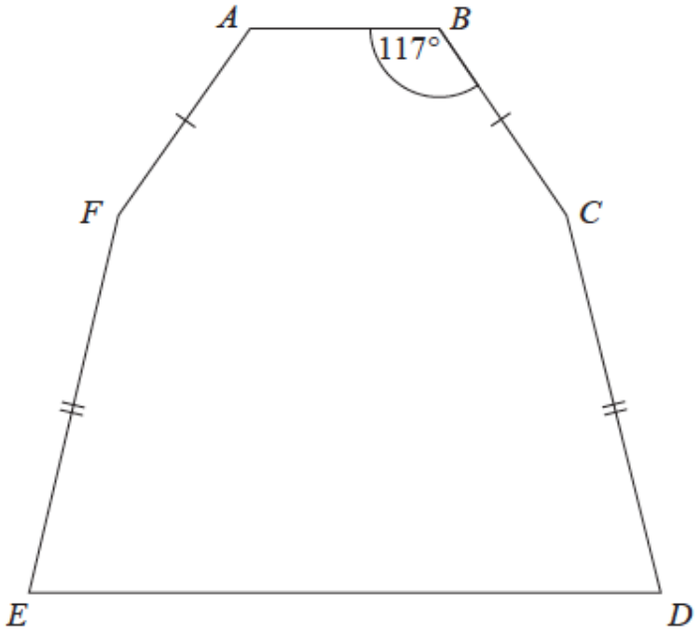
2 .....

.....

.....

(Total for Question 4 is 2 marks)

5 The diagram shows a hexagon.
The hexagon has one line of symmetry.



$FA = BC$
$EF = CD$
Angle $ABC = 117°$

Angle $BCD = 2 \times$ angle CDE

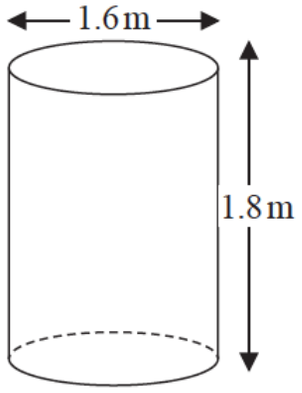
Work out the size of angle AFE.
You must show all your working.

.....°

(Total for Question 5 is 4 marks)

6 Jeremy has to cover 3 tanks completely with paint.

Each tank is in the shape of a cylinder with a top and a bottom.
The tank has a diameter of 1.6 m and a height of 1.8 m.



Jeremy has 7 tins of paint.
Each tin of paint covers 5 m^2

Has Jeremy got enough paint to cover completely the 3 tanks?
You must show how you get your answer.

(Total for Question 6 is 5 marks)

TOTAL FOR PAPER IS 22 MARKS

Pearson

WEEK 2 MARKSCHEMES

(Higher 4-6)

WEEK 2 TASK 1

Question 1 (Total 4 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
(a)	$1 - 0.2 = 0.8$	P1	This mark is given for a method to solve the inequality
	0.4, 0.4	A1	This is mark is given for two correct answers (equivalent fractions acceptable)
(b)	$12 \div 0.2$	P1	This mark is given for a process to find the number of blue cubes in the box
	60	A1	This mark is given for the correct answer only

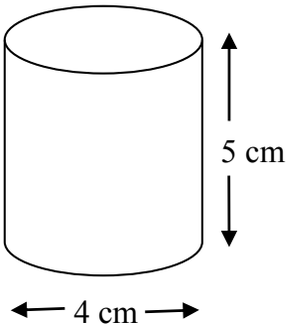
Question 2 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	For 15 biscuits: Flour needed = 3×50 g = 150 g	P1	This mark is given for a process to find the amount of flour needed for 15 biscuits
	For 60 biscuits: $\frac{60}{15} \times 150$	P1	This mark is given for a process to find the amount of flour needed for 60 biscuits
	600	A1	This mark is given for the correct answer only
(b)	For 15 biscuits: Butter needed = 2×50 g = 100 g For 60 biscuits: $\frac{60}{15} \times 100 = 400$	P1	This mark is given for a process to find the amount of butter needed for 60 biscuits
	$\frac{400}{250} = 1.6$, so 2 packets needed	A1	This mark is given for the correct answer only

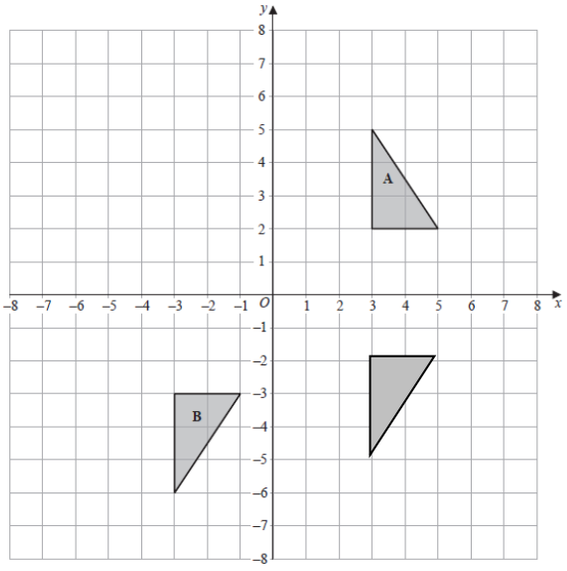
Question 3 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Prime factors of 72 are 2, 2, **2, 3, 3** Prime factors of 90 are **2, 3, 3**, 5	M1	This mark is given for a method to find the prime factors of both 72 and 90
	HCF = 2 × 3 × 3 = 18	A1	This mark is given for the correct answer only

Question 4 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		M1	This mark is given for sketch of a cylinder
		P1	This mark is given for sketch of a cylinder with dimensions shown

Question 5 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		M1	This mark is given for a correct reflection of **A** shown on the diagram
	$c = -6$ $d = -1$	A1	This mark is given for a correct value for either c or d
		A1	This mark is given for a correct value for both c and d

Question 6 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$2 \times 7 : 5 \times 3 : 6 \times 4$ $14 : 15 : 24$	P1	This mark is given for a process to find the ratio of the number of pens of each colour sold
	$212 \div (14 + 15 + 24)$	P1	This mark is given for a process to find the proportion of green pens sold
	$\frac{212}{53} \times 24$	P1	This mark is given for a process to find the number of green pens sold
	96	A1	This mark is given for the correct answer only

Question 7 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$PQ = 45 \div 10 = 4.5$ $BC = 4.5$	P1	This mark is given for a process to use the area of $PQRS$ to find the lengths of PQ and BC
	$26 - (2 \times 4.5)$	P1	This mark is given for a process to use the perimeter of $ABCD$ to find the length AB
	$AB = 17 \div 2$	P1	This mark is given for a process to to find the length AB
	8.5	A1	This mark is given for the correct answer only

WEEK 2 TASK 2

Answer all questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 The table shows the number of books read by four people in one month.

Person	Number of books
Ximena	7
Martha	9
Kezia	1
Tabby	5

(*a*) Work out the median number of books.

1 5 7 9

↑

6 1 mark

(2)

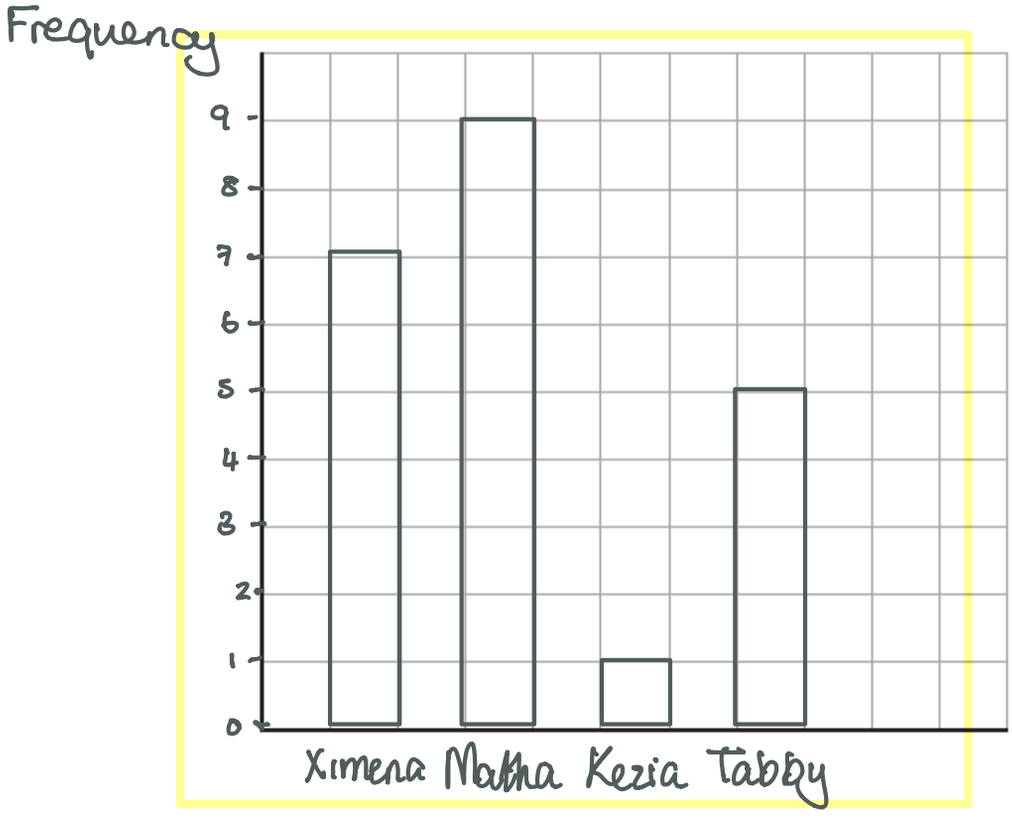
(*b*) Find the range.

9 - 1

8 1 mark

(1)

(*c*) On the grid, draw a bar chart to show the information in the table.



1 mark for fully correct bar chart

Or 1 mark for correct scale or name labels

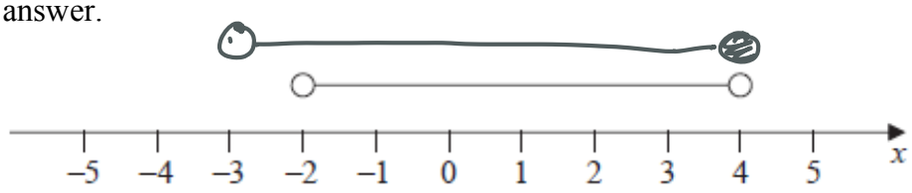
Or 1 mark for at least two correct bars

(3)

(Total for Question 1 is 6 marks)

***2** Jenna is asked to show the inequality $-3 < x \leq 4$ on a number line.

Here is her answer.



(*a*) Write down two mistakes Jenna has made.

1 The circle at -2 should be at -3 1 mark

2 The circle at 4 should be solid. 1 mark

(2)

(*b*) Work out the greatest integer that satisfies the inequality

$$5y - 7 < 16$$

$5y - 7 < 16$

$+7 \quad +7$

1 mark $5y < 23$

$\div 5 \quad \div 5$

1 mark $y < 4.6$

4 Final mark

(2)

(Total for Question 2 is 4 marks)

***3** Lava flows from a volcano at a constant rate of 11.9 m^3/s

How many days does it take for 67 205 600 m^3 of lava to flow from the volcano?
Give your answer correct to the nearest day.

67 205 600 ÷ 11.9 1 mark

= 5647529.412 seconds

1 mark ÷ 86400 = 65.3649...

days

1 day = 60 × 60 × 24

= 86400 seconds

65 Final mark days

(Total for Question 3 is 3 marks)

4 Jenny invests £3000 for 6 years at y% simple interest per year.

At the end of the 6 years, Jenny has received a total of £450 in interest.

Work out the value of y.

1 mark $450 \div 6 = 75$ per year

1 mark $\frac{75}{3000} \times 100 = 2.5$

$y =$ 2.5 Final mark

(Total for Question 4 is 3 marks)

---

5 120 boxes cost £6
270 bags cost £10

A bag is cheaper than a box.

How much cheaper?
Give your answer in pence correct to 1 decimal place.

120 boxes = 600p ÷120

1 box = 5p

1 mark

270 bags = 1000p ÷270

1 bag = 3.7037... p

1 mark

Difference = 5 − 3.7037... 1 mark

= 1.296...

so 1.3p

1.3 Final mark

.....p

(Total for Question 5 is 4 marks)

Range accepted 1.29 to 1.3

***6** Seija works at a weather station.
The table gives information about the temperature, T °C, at midday for each of 50 cities in the UK on Tuesday.

Temperature (T °C)		Frequency	
$10 < T \leq 15$ (12.5)	×	2	= 25
$15 < T \leq 20$ (17.5)	×	8	= 140
$20 < T \leq 25$ (22.5)	×	13	= 675
$25 < T \leq 30$ (27.5)	×	21	= 577.5
$30 < T \leq 35$ (32.5)	×	6	= 195
		50	

1 mark

(*a*) Calculate an estimate for the mean temperature.

$$\frac{25 + 140 + 675 + 577.5 + 195}{50}$$

1 mark

$$= \frac{1230}{50}$$

Final mark

24.6 °C

(3)

Seija says,

> "The median temperature is 22.5 °C because 22.5 is the middle number in the middle group."

(*b*) Is Seija correct?
Give a reason for your answer.

50 ÷ 2 = 25 2 + 8 = 10 ✗ 10 + 13 = 23 ✗

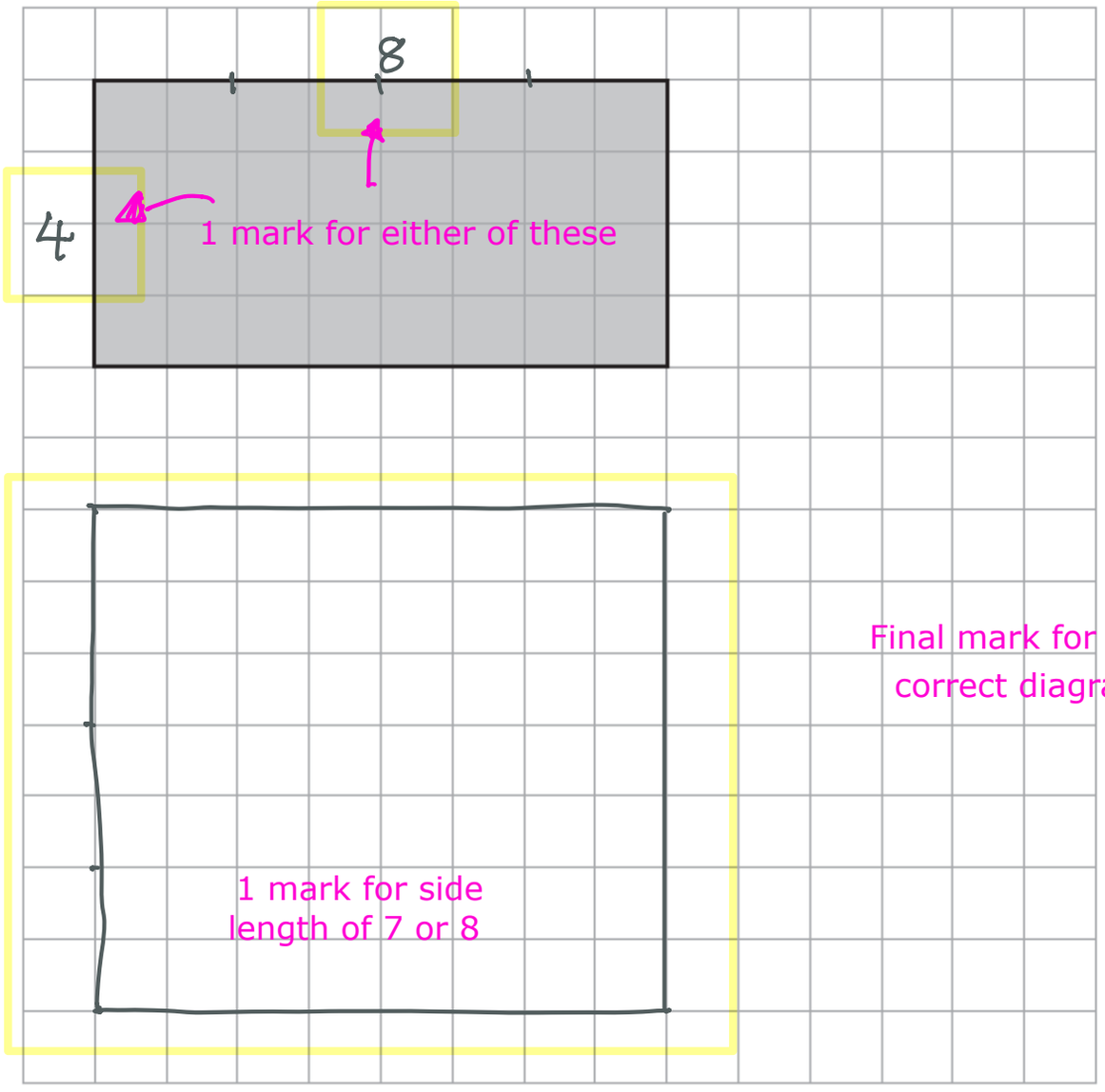
No its in the $25 < T \leq 30$ interval

1 mark

(1)

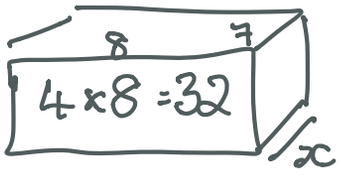
(Total for Question 6 is 4 marks)

7 The front elevation of a cuboid is shown on the centimetre grid below.



The volume of the cuboid is 224 cm^3

On the grid, draw the plan of the cuboid.

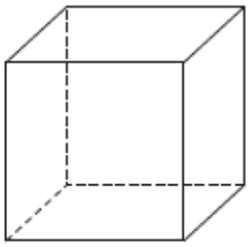


$32 \times x = 224$

$x = \frac{224}{32} = 7$

(Total for Question 7 is 3 marks)

***8** The diagram shows a solid cube placed on a horizontal table.



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

The pressure on the table due to the cube is 3.5 newtons/cm^2
The force exerted by the cube on the table is 504 newtons.

Show that the total surface area of the cube is less than 900 cm^2

$3.5 = \frac{504}{\text{area}}$ 1 mark

$\text{area} = \frac{504}{3.5}$

$= 144 \text{ cm}^2$ ← 1 face

Total surface area

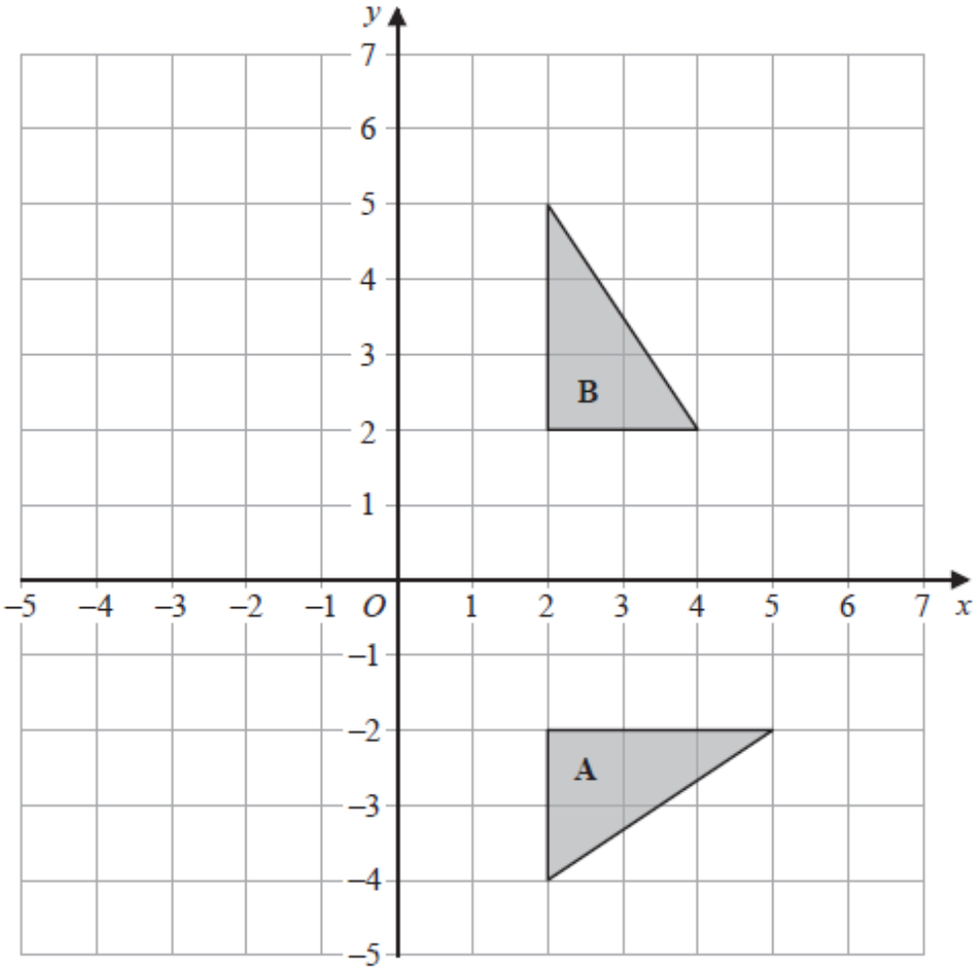
$= 144 \times 6$ 1 mark

$= 864 \text{ cm}^2$ Final mark

$864 < 900$

(Total for Question 8 is 3 marks)

9



Describe fully the single transformation that maps shape **A** onto shape **B**.

Rotation of 90° about (0,0)

1 mark 1 mark

(Total for Question 9 is 2 marks)

***10** A and B are numbers such that

$$A = 2^2 \times 3^4 \times 7$$
$$B = 3^2 \times 7^2$$

(a) Find the highest common factor (HCF) of A and B.

$A = 2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 7$

$B = 3 \times 3 \times 7 \times 7$

HCF $= 3 \times 3 \times 7$

63 1 mark

(1)

(b) Find the lowest common multiple (LCM) of A and B.

LCM $= 63 \times 2 \times 2 \times 3 \times 3 \times 7$ 1 mark

$= 15876$

15876 Final mark

(2)

(Total for Question 10 is 3 marks)

***11** It takes 14 hours for 5 identical pumps to fill a water tank.

How many hours would it take 4 of these pumps to fill another water tank of the same size?

1 mark

14 hours $\times 5$ = 70 hours

70 hours $\div 4$ = 17.5 hours

5 pumps $\div 5$ → 1 pump $\times 4$ → 4 pumps

inverse proportion

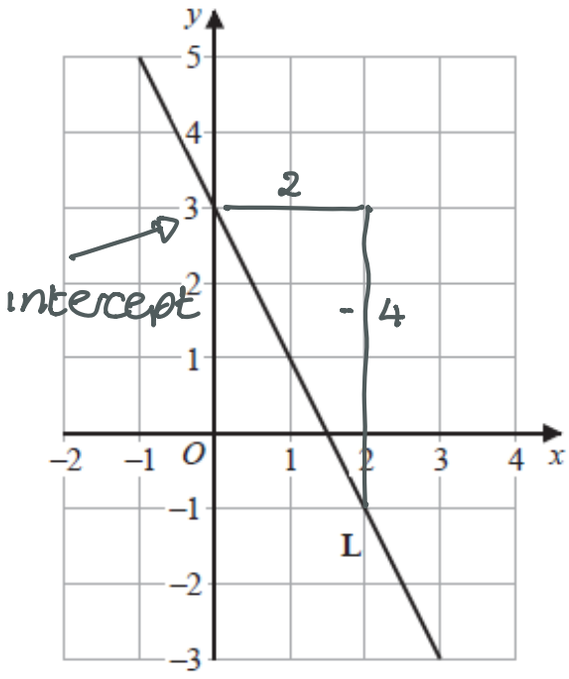
Final mark

17.5 hours

(Total for Question 11 is 2 marks)

***12** The line **L** is shown on the grid.

Find an equation for **L**.



gradient $= \frac{-4}{2} = -2$ 1 mark

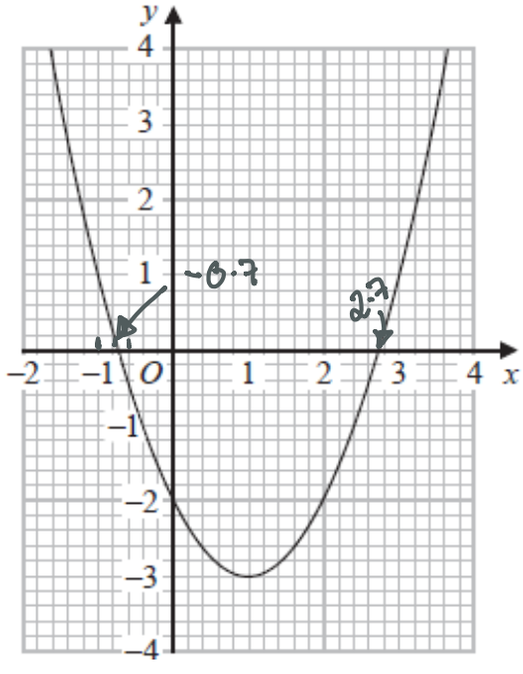
$y = -2x + 3$

1 mark

Final mark $y = -2x + 3$

(Total for Question 12 is 3 marks)

***13** Here is the graph of $y = x^2 - 2x - 2$



Write down an estimate for one of the roots of $x^2 - 2x - 2 = 0$

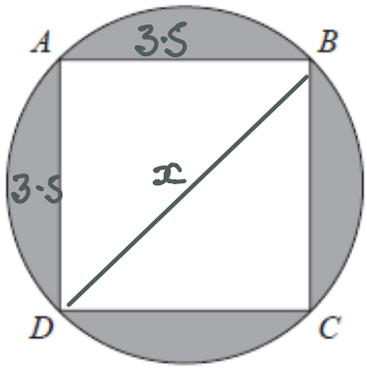
1 mark

-0.7 OR 2.7

(Total for Question 13 is 1 mark)

Range accepted -0.6 to -0.8 and 2.6 to 2.8

14 *A*, *B*, *C* and *D* are points on a circle such that *ABCD* is a square.



The square *ABCD* has sides of length 3.5 cm.

Calculate the circumference of the circle.
Give your answer correct to 1 decimal place.
You must show all your working.

diameter

$x^2 = 3.5^2 + 3.5^2$ 1 mark

$= 24.5$

$x = \sqrt{24.5}$

$= 4.9497...$ 1 mark

Circumference

$= \pi \times 4.9497...$ 1 mark

$= 15.556...$

Final mark 15.6 ..... cm

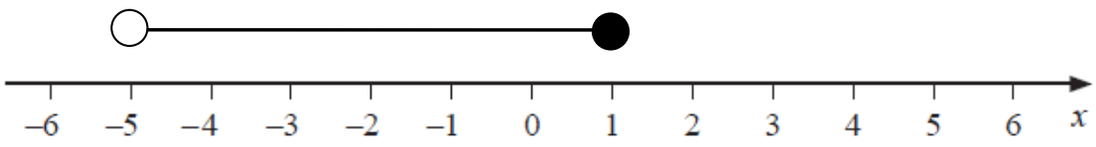
(Total for Question 14 is 4 marks)

Range accepted 15 to 16

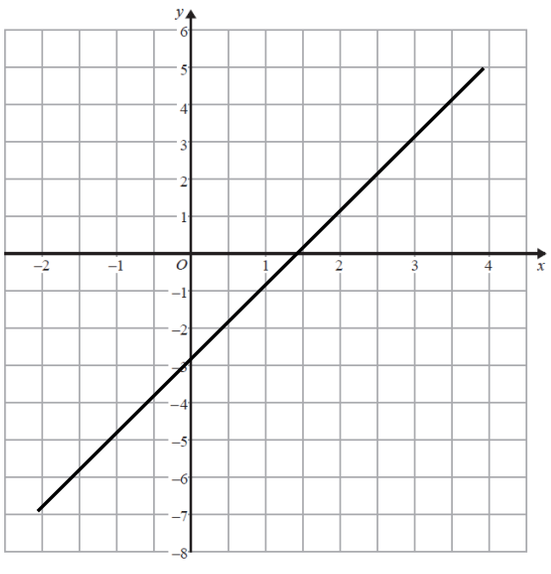
TOTAL FOR PAPER IS 45 MARKS

WEEK 2 TASK 3

Question 1 (Total 5 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
(a)	$14n - 11n > 6$ $3n > 6$	M1	This mark is given for a method to solve the inequality
	$n > 2$	A1	This mark is given for the correct answer only
(b)			
		M1	This mark is given for drawing a line from –5 to 1
		M1	This mark is given for an open circle drawn at –5 or a closed circle drawn at 1
		A1	This mark is given for a completely correct diagram

Question 2 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		B3	These marks are given for a correct straight line between the points (–2, –7) and (4, 5) (B2 is given for a straight line segment through at least three of the points (–2, –7), (–1, 5), (0, –3), (1, –1) (2, 1), (3, 3) and (4, 5)) (B1 is give for at least two correct points stated or plotted or for a line drawn with gradient 2)

Question 3 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(i)	$\frac{10}{30} \times 195$	M1	This mark is given for a method to find an estimate of how many students will want to go to the Theme Park
	65	A1	This mark is given for the correct answer only
(ii)	The sample is representative of all 195 students; otherwise the estimate might be wrong	C1	This mark is given for a correct statement

Question 4 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$30 \times 6 \times 19 = 3420$	P1	This mark is given for a process to find the volume of the container
	$\frac{2}{3} \times 3420 = 2280$	P1	This mark is given for a process to find the volume of water in the container
	$2280 \div 275 = 8.29\ldots$	P1	This mark is given for a process to find out how many cups can be filled
	8 cups	A1	This mark is given for the correct answer only

Question 5 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$AB = \sin 38° \times 16$ $AB = 0.61566 \times 16$	M1	This mark is given for a method to find the length of AB
	9.85	A1	This mark is given for the correct answer only

Question 6 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$8.3 \leq y < 8.4$	B1	This mark is given for either 8.3 or 8.4 seen in the correct position
		B1	This mark is given for the correct answer only

Question 7 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Chloe and Denesh each receive 1.5×2	P1	This mark is given for a process to find out the proportion that Chloe and Denesh each share
	A : B : C : D = 2 : 7 : 3 : 3	P1	This mark is given for a process to find the ratio of money that each person shares
	$\frac{7}{2+7+3+3} \times 360 = \frac{7}{15} \times 360$	P1	This mark is given for a process to find the amount of money that Ben gets
	168	A1	This mark is given for the correct answer only

Question 8 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	5.62×10^{-3}	B1	This mark is given for the correct answer only
	1452	B1	This mark is given for the correct answer only

WEEK 2 TASK 4

Answer all questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

***1** (a) Write down the value of 5^0

1 1 mark

.....

(1)

(*b*) Write $\frac{2^5 \times 2^4}{2^3}$ in the form 2^n where n is an integer.

1 mark $\frac{2^{5+4}}{2^3} = \frac{2^9}{2^3}$ 2^{9-3}

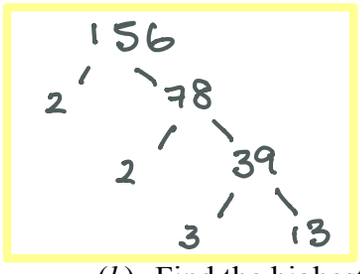
2^6 Final mark

.....

(2)

(Total for Question 1 is 3 marks)

***2** (*a*) Write 156 as a product of its prime factors.



1 mark for complete method to find prime factors with no more than one error

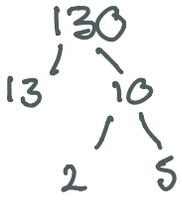
OR for sight of 2,2,3,13

$2 \times 2 \times 3 \times 13$ Final mark

.....

(2)

(*b*) Find the highest common factor (HCF) of 156 and 130



$156 = 2 \times 2 \times 3 \times 13$

$130 = 2 \times 5 \times 13$

1 mark

HCF : 2×13

26 Final mark

.....

(2)

(Total for Question 2 is 4 marks)

---

3 The menu in a restaurant has starters, main courses and desserts.

There are 5 starters.
There are 12 main courses.
There are x desserts.

There are 420 different ways to choose one starter, one main course and one dessert.

Work out the value of x. 1 mark

$5 \times 12 \times x = 420$

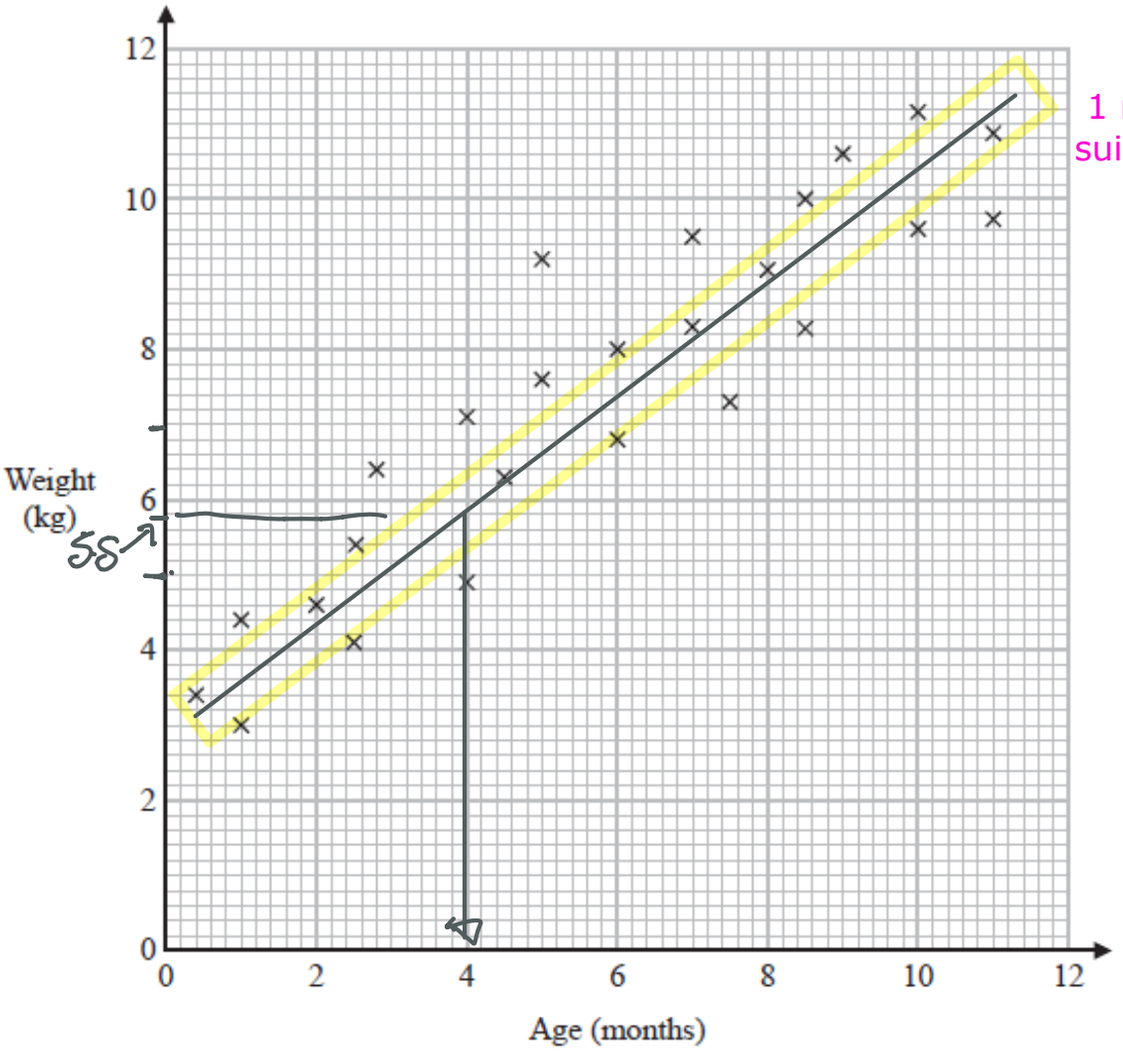
$x = \frac{420}{60}$

$x =$ 7 Final mark

.....

(Total for Question 3 is 2 marks)

***4** The scatter graph shows information about the ages and weights of some babies.



1 mark for a suitable line of best fit

(*a*) Describe the relationship between the age and the weight of the babies.

1 mark

its a positive correlation, which means as they babies get older they weigh more

(1)

Another baby has a weight of 5.8 kg

(*b*) Using the scatter graph, find an estimate for the age of this baby.

Final mark 4 months

Range accepted 2.5 to 4.5

(2)

(Total for Question 4 is 3 marks)

***5** Work out $7\frac{3}{8} - 2\frac{1}{2}$

Give your answer as a mixed number.

$7\frac{3}{8} = \frac{59}{8}$

$2\frac{1}{2} = \frac{5}{2}$

$\frac{59}{8} - \frac{5}{2}$ 1 mark

$\times 4$

$= \frac{59}{8} - \frac{20}{8}$ 1 mark

$= \frac{39}{8}$

8, 16, 24, 32

$4\frac{7}{8}$ Final mark

(Total for Question 5 is 3 marks)

***6** Work out 6.3×2.4

1 mark

	60	3
20	1200	60
4	240	12

1200
240
60
12
1512

1 mark for digits 1512

80 $63 \times 24 = 1512$

$6.3 \times 2.4 = 15.12$ Final mark

(Total for Question 6 is 3 marks)

7 Alice recorded the number of cars going into a village on each of 80 days.
The incomplete table and the incomplete box plot give information about her results.

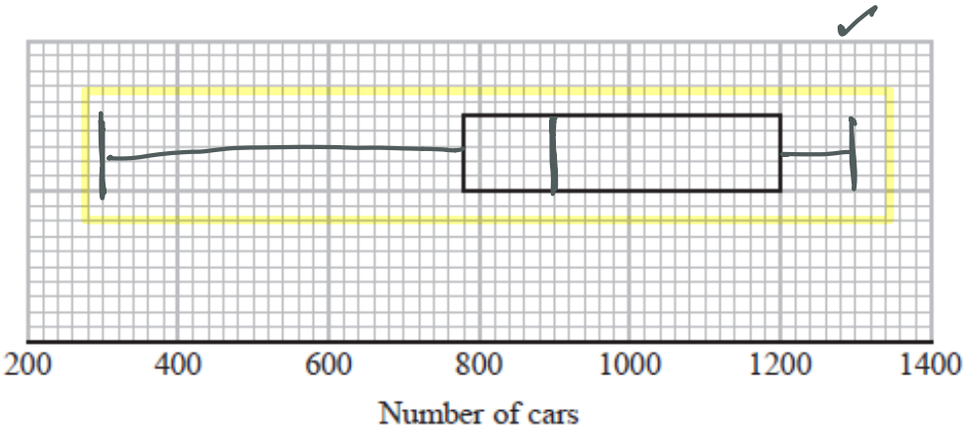
3 marks for 780, 1200, median plotted and both whiskers drawn

2 marks for two of the above

1 mark for any one of the above

	Number of cars
Least number	300 ✓
Lower quartile	780
Median	900 ✓
Upper quartile	1200
Range	1000

greatest → 300 + 1000



(i) Use the information in the table to complete the box plot.

(ii) Use the information in the box plot to complete the table.

(Total for Question 7 is 3 marks)

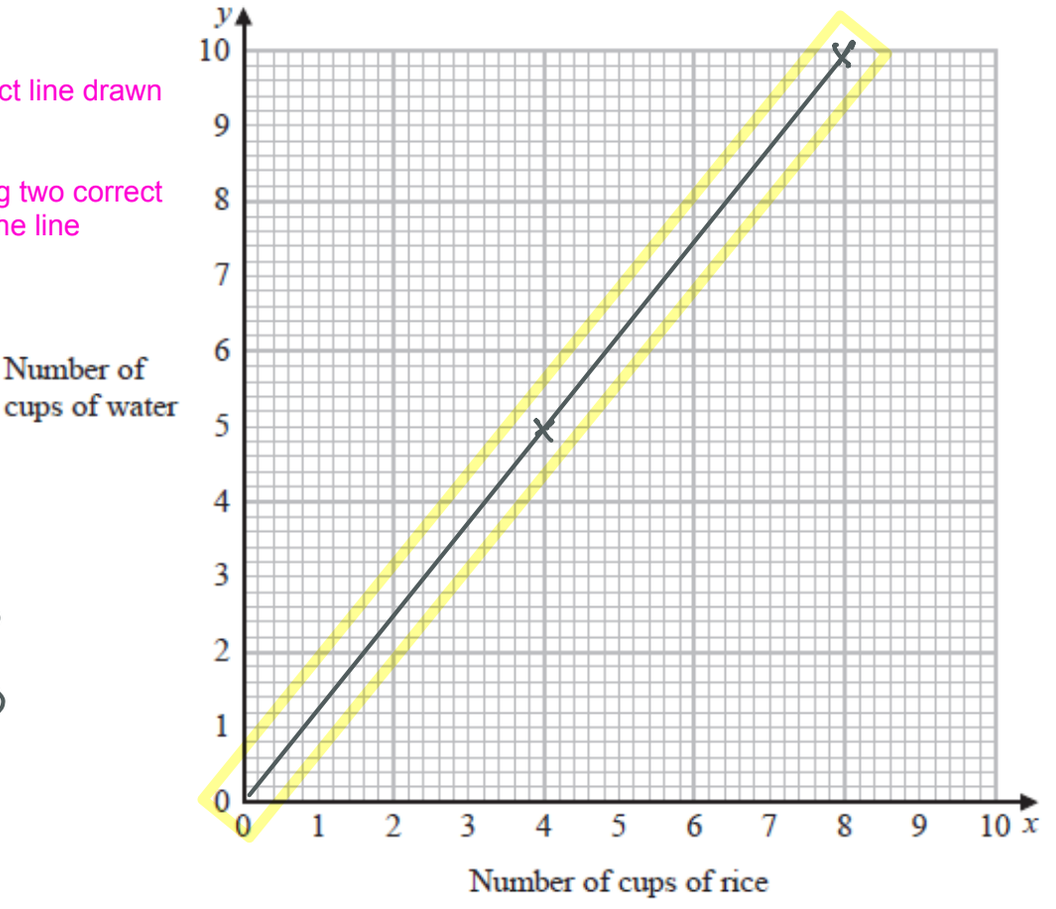
8 To cook rice

the number of cups of rice (x) : the number of cups of water (y) = 4 : 5

Use this information to draw a graph to show the relationship between the number of cups of rice and the number of cups of water needed to cook rice.

2 marks for correct line drawn

1 mark for plotting two correct points on the line



x : y
4 : 5

8 : 10

(Total for Question 8 is 2 marks)

***9** Work out 8.46 ÷ 0.15

$\frac{8.46}{0.15} = \frac{846}{15} =$ 846 ÷ 15 1 mark

15
30
45
60
75
90
105

0 5 6 . 4
15 | 8 8 4 9 6 . 6 0

1 mark for digits 564

56.4 Final mark

(Total for Question 9 is 3 marks)

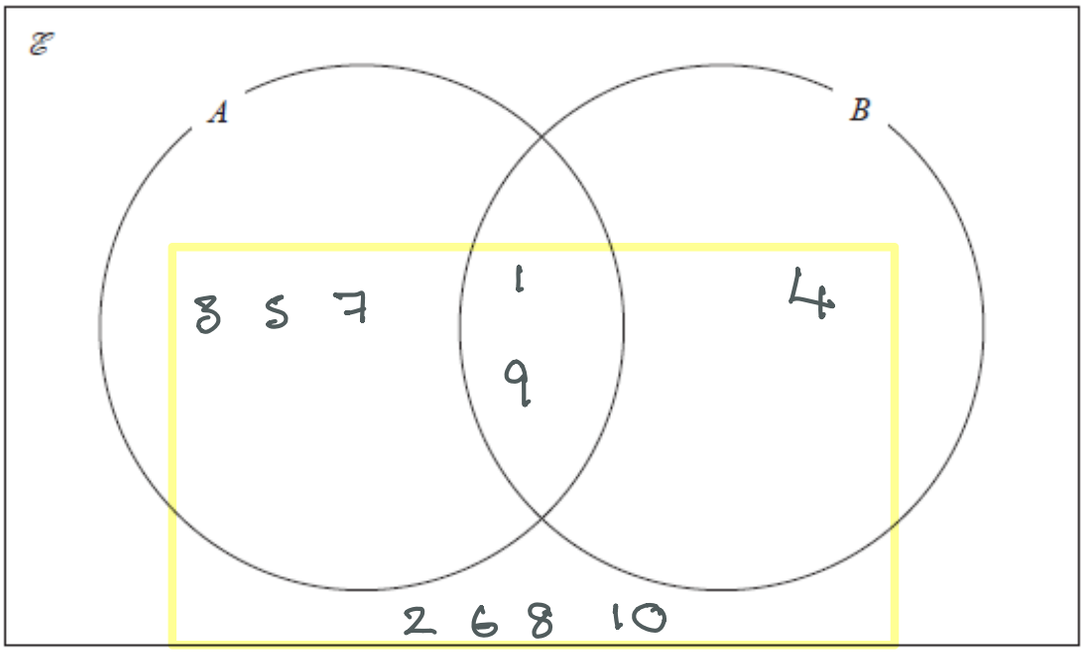
***10** $\mathscr{E}$ = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
A = {odd numbers} 1 3 5 7 9
B = {square numbers} 1 4 9

Complete the Venn diagram for this information.

1 mark for one correct region

2 marks for two or three correct regions

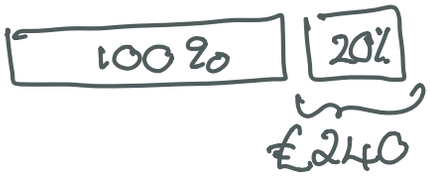
3 marks for all correct



((Total for Question 10 is 3 marks)

***11** The price of a holiday increases by 20%
This 20% increase adds £240 to the price of the holiday.

Work out the price of the holiday before the increase.



20% = £240
×5 ×5
100% = £1200

1 mark

Special case: if no marks awarded but an answer of 960 or 1440 given 1 mark can be awarded

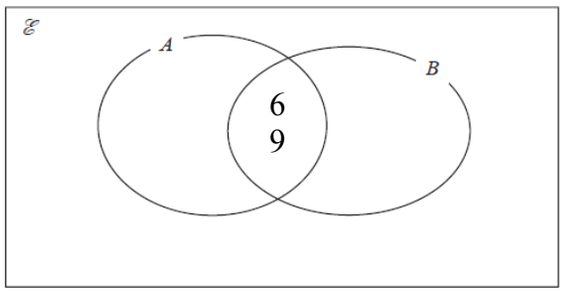
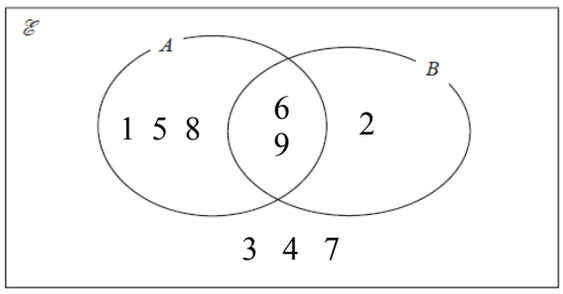
£ 1200 Final mark

(Total for Question 11 is 2 marks)

TOTAL FOR PAPER IS 31 MARKS

WEEK 2 TASK 5

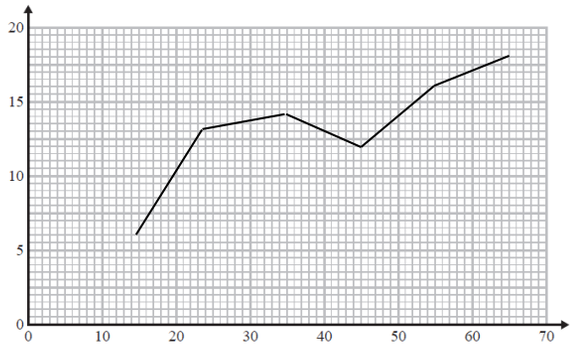
Question 1 (Total 5 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
(a)		M1	This mark is given for placing numbers 6 and 9 in the intersection of A and B
		M1	This mark is given for placing numbers 1, 5 and 8 in set A only **or** the number 2 in set B only **or** the numbers 3, 4 7 outside $A \cup B$
		C1	This mark is given for a fully correct Venn diagram
(b)	There are 2 numbers in $A \cap B$ There are 9 numbers in the universal set	M1	This mark is given for one of these two statements seen
	$\frac{2}{9}$	A1	This mark is given for a correct answer only

Question 2 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$200\,000 \times 1.015 = 203\,000$	M1	This mark is given for a method to show the amount that will be in the savings account after one year
	$200\,000 \times (1.015)^4 = 212\,272.71$	M1	This mark is given for a method to show the amount that will be in the savings account after four years
	$212\,272.71 - 200\,000 = 12\,272.71$	A1	This mark is given for a correct answer (in the range 12 272.70 to 12 272.72)

Question 3 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$40 < h \leq 50$	B1	This mark is given for the correct answer only
(b)		B2	This mark is given for a correct polygon with points plotted at midpoints (B1 is given for one point incorrect)

Question 4 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example: Points should be joined by straight lines, not curved lines	B1	This mark is given for a first correct statement
	The first quarter not shown 9.5 is missing from the vertical axis The vertical axis does not start from zero	B1	This mark is given for a second correct statement

Question 5 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(6 - 2) \times 180 = 720$	M1	This mark is given for a method to find the sum of the interior angles of a hexagon
	Letting the angles AFE and $BCD = x$ and the angles FED and $CDE = 2x$, then $720 - 117 - 117 = 6x$	M1	This mark is given for a method to find the missing angles of the hexagon
	$x = \frac{486}{6} = 81$	M1	This mark is given for a method to find the value of x
	Thus angle $CDE = 2x = 162$	C1	This mark is given for the correct answer only following from correct working

Question 6 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$2 \times \pi \times 0.8^2 = 4.021$	P1	This mark is given for a process to find the area of the top and bottom of the tank
	$2\pi \times 0.8 \times 1.8 = 9.047$	P1	This mark is given for a process to find the curved surface area of the tank
	$4.021 + 9.047\ldots = 13.069$	P1	This mark is given for a process to find the total surface area of the tank
	$3 \times 13.068 = 39.204$	P1	This mark is given for a process to find the total surface area of three tanks
	Jeremy only has enough paint to cover 35 m^2 so Jeremy does not enough paint to completely cover 3 tanks	C1	This mark is given for a correct conclusion supported by correct working