

Sample student 1

9to1_GCSE_Edexcel_Summer2018_1H

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Your Exam Statistics

Strand	Overall	Number	Algebra	Data	Shape	Ratio
AO1	5 from 30	3 from 12	1 from 8	1 from 3	0 from 4	0 from 3
A02 and 3	14 from 50	5 from 5	2 from 22	2 from 5	3 from 9	2 from 9
Total	19 from 80	8 from 17	3 from 30	3 from 8	3 from 13	2 from 12

Your Pinpoint Topics

- (1) Add and Subtract Mixed Numbers. MWatch: , Hegarty: 66
- (2) Combining Ratios. MWatch: , Hegarty:
- (3) Estimation and Reasoning. MWatch: 91, Hegarty: 131
- (4) Surface Area. MWatch: 114, Hegarty: 584, 585
- (5) Box plots. MWatch: 187, Hegarty: 434 to 440

1) Add and Subtract Mixed Numbers: Easier

1) Work out

$$\frac{3}{4} + \frac{4}{5}$$

(2 Marks)

2) Calculate

$$\frac{5}{6} - \frac{2}{3}$$

(2 Marks)

3) Work out

$$2\frac{1}{5} + 3\frac{2}{5}$$

(2 Marks)

4) Work out

$$3\frac{2}{3} - 1\frac{1}{3}$$

(2 Marks)

1) Add and Subtract Mixed Numbers: Medium

5) Calculate

$$1\frac{1}{4} + 1\frac{1}{5}$$

(3 Marks)

6) Work out and give your answer as a mixed number

$$2\frac{1}{7} + 3\frac{1}{3}$$

(4 Marks)

7) Work out

$$1\frac{7}{8} - 1\frac{1}{3}$$

(3 Marks)

1) Add and Subtract Mixed Numbers: Harder

8) Work out

$$2\frac{1}{5} - 2\frac{1}{4}$$

(3 Marks)

9) Work out. Giving you answer in its simplest form

$$2\frac{1}{3} - 1\frac{3}{4} + \frac{1}{12}$$

(3 Marks)

10) Work out the missing fraction. Give your answer as a mixed number

$$\frac{1}{10} + \text{--} = 2\frac{1}{5}$$

(3 Marks)

2) Combining Ratios: Easier

1) In a pet shop the ratio of cats to dogs to hamsters is 1 : 2 : 4

a) Write down the ratio of cats to dogs

_____ : _____

(1 Mark)

b) Write down the ratio of cats to hamsters

_____ : _____

(1 Mark)

c) Write down the ratio of hamsters to dogs, giving your answer in it's simplest form

_____ : _____

(2 Marks)

2) Rajveer is hosting a birthday party at his house. He has ordered sweets, biscuits and iced lollies for the party.

The ratio of sweets to biscuits is 3 : 2.

The ratio of biscuits to iced lollies is 6 : 5

a) Explain why the ratio of sweets to biscuits can be written 9 : 6

(1 Mark)

b) Write the ratio of sweets to biscuits to iced lollies

_____ : _____ : _____

(1 Mark)

2) Combining Ratios: Medium

- 3) Given that $a:b = 5:3$ and $b:c = 6:1$ find the ratio $a:b:c$.
Give your answer in its simplest form.

_____ : _____ : _____

(2 Marks)

- 4) Given that $p:q = 2:7$ and $q:r = 2:5$ find the ratio $p:q:r$.
Give your answer in its simplest form.

_____ : _____ : _____

(2 Marks)

- 5) In a pond the number of frogs to fish are in the ratio $6:5$
The number of ducks to fish are in the ratio $1:2$

The pond has 189 frogs, fish and ducks in total.

Calculate the number of fish in the pond

(3 Marks)

2) Combining Ratios: Harder

- 6) Andy, Beth and Charlie each have some coins.
 Andy has twice as many coins as Beth.
 Charlie has half the number of coins that Beth has.

Write the ratio of the number of coins held by Andy : Beth : Charlie

_____ : _____ : _____

(3 Marks)

- 7) A competition allows pairs to enter and awards cash prizes for the top two teams.

Rabia and Samantha come second in the competition and share their money in the ratio 3 : 2.

Rabia receives £ R and Samantha receives £ S .

Tochuku and Utsav win the competition and receive three times as much as Rabia and Samantha's team. They share their money in the ratio 1 : 2 and receive £ T and £ U respectively.

Write the ratio $R : S : T : U$ in its simplest form.

_____ : _____ : _____ : _____

(3 Marks)

3) Estimation and Reasoning (Non-Calc): Easier

- 1) Find an estimate for $\frac{423 \times 69.5}{0.52}$

(2 Marks)

- 2) a) Estimate the value of $\sqrt{2.9 + 9.6 + 1.98}$

- b) Explain if your answer to a) is an overestimate or underestimate

(3 Marks)

- 3) A water bottling plant has 967 machines, each machine filters on average 2912 litres per day. The water is then put into $\frac{1}{2}$ litre bottles. Estimate how many bottles the plant fills in one day

(2 marks)

3) Estimation and Reasoning (Non-Calc): Medium

- 4) A litre of petrol costs £1.07, Sally's car can travel 9.8Km on one litre of petrol. Sally wants to travel from Manchester to Stoke. The distance from Manchester to Stoke is 71.4km. Estimate the cost of Sally's journey from Manchester to Stoke. Show your working.

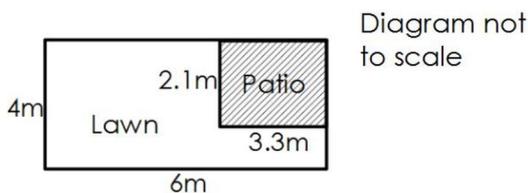
(2 Marks)

- 5) Jeremy organised a charity celebrity football match. Each ticket for the football match cost £20.05. Jeremy sold 507 tickets. Jeremy had to pay costs of £2980 He gave all money left to the charity.
- a) Work out an estimate for the amount of money Jeremy gave to the charity.

- b) Is your answer to (a) an underestimate or an overestimate?
Give a reason for your answer.

(4 Marks)

- 6) Elizabeth wants to lay new turf on her lawn. Below is a diagram to show the measurements of the lawn. Each roll of turf covers 3m^2 .



- a) Work out an estimate for how many rolls she will need. You must show all working for how you reached your estimate.
- b) By considering your estimate and no further calculations explain if Elizabeth will have enough rolls to cover the lawn, assuming no turf is wasted

(3 Marks)

3) Estimation and Reasoning (Non-Calc): Harder

- 7) a) The population of Italy is 59715625. It has an area of 301230Km². Population density can be worked out using the formula below. Work out an estimate for the population density of Italy.

$$\text{population density} = \frac{\text{population}}{\text{area}}$$

- b) Explain whether Italy is more densely populated than your estimate or less densely populated.

(3 Marks)

- 8) The mass of the Earth is $5.98 \times 10^{24} \text{ kg}$. Jupiter's mass is 318 times larger than Earth's. Estimate the mass of Jupiter. Give your estimate in standard form. You must show how you reached your estimate.

(3 Marks)

4) Surface Area: Easier

1. The diagram shows a cuboid of dimensions $10\text{cm} \times 8\text{cm} \times 5\text{cm}$.

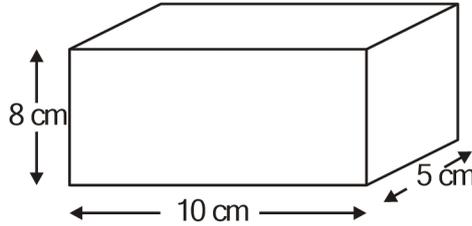


Diagram **NOT** accurately drawn

Work out the total surface area of the cuboid.

State the units with your answer.

.....
(Total 4 marks)

2. The diagram shows a solid cuboid which is 5cm by 4cm by 3cm .

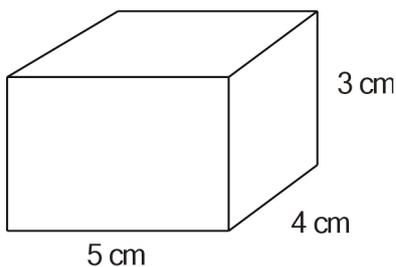


Diagram **NOT** accurately drawn

What is the total surface area of this cuboid?

State the units with your answer.

.....
(Total 4 marks)

4) Surface Area: Medium

3. Here is a cuboid.

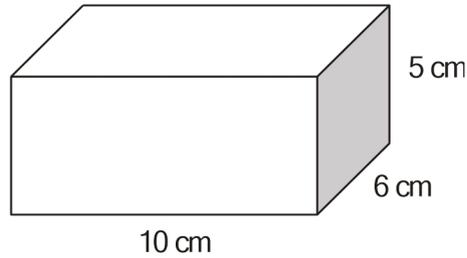


Diagram NOT accurately drawn

What is the total surface area of the cuboid?

State the units with your answer.

.....
(Total 4 marks)

4.

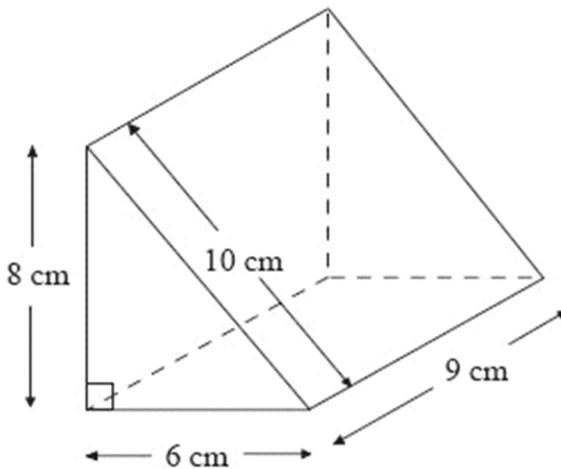


Diagram NOT
accurately drawn

Work out the surface area of the triangular prism.
State the units with your answer.

.....
(Total 4 marks)

4) Surface Area: Harder

9.

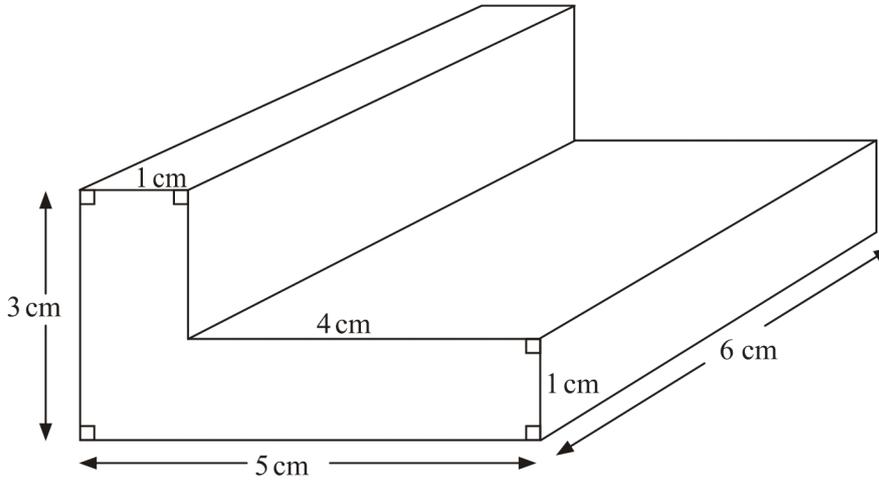


Diagram NOT
accurately drawn

Work out the total surface area of the L-shaped prism.
State the units with your answer.

.....
(Total 4 marks)

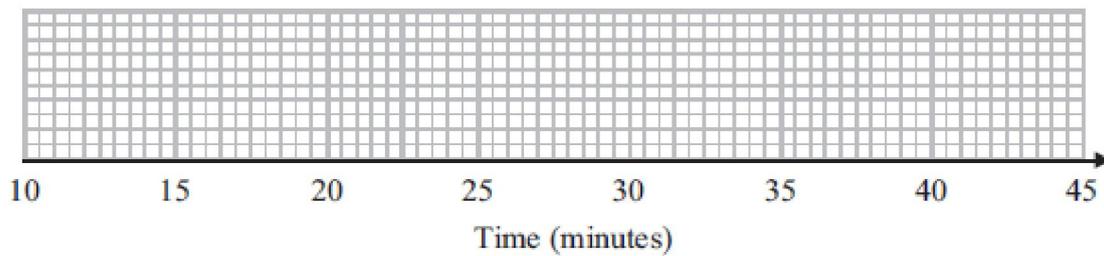
5) Box plots: Easier

2. Sameena recorded the times, in minutes, some girls took to do a jigsaw puzzle.

Sameena used her results to work out the information in this table.

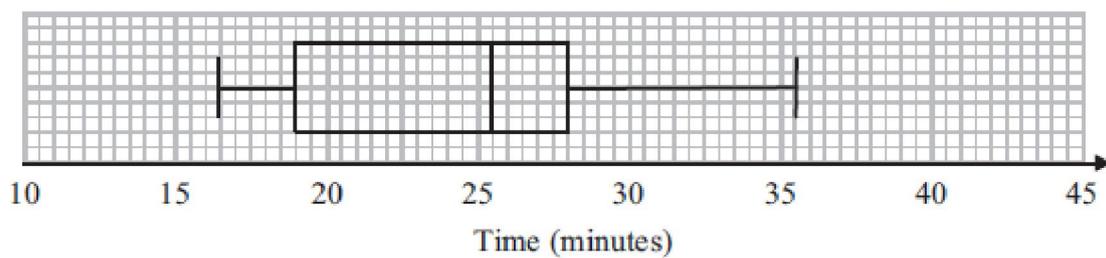
	Minutes
Shortest time	18
Lower quartile	25
Median	29
Upper quartile	33
Longest time	44

- (a) On the grid, draw a box plot to show the information in the table.



(2)

The box plot below shows information about the times, in minutes, some boys took to do the same jigsaw puzzle.



- (b) Compare the distributions of the girls' times and the boys' times.

.....

.....

.....

.....

(2)

(4 marks)

5) Box plots: Medium

1. Mary recorded the heights, in centimetres, of the girls in her class.

She put the heights in order.

132 144 150 152 160 162 162 167
 167 170 172 177 181 182 182

(a) Find

(i) the lower quartile,

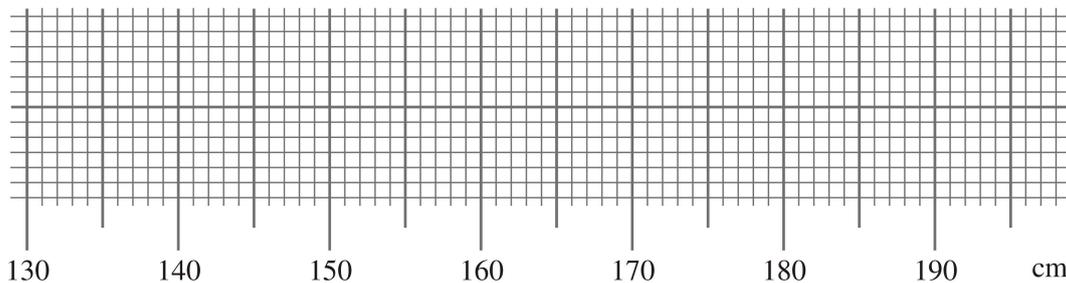
..... cm

(ii) the upper quartile.

..... cm

(2)

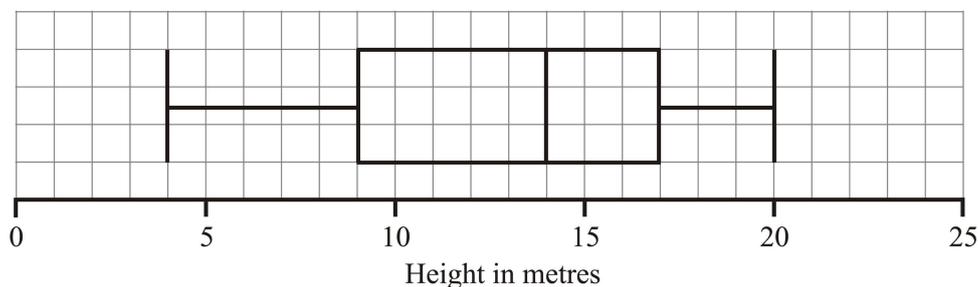
(b) On the grid, draw a box plot for this data.



(3)

(Total 5 marks)

4. The box plot gives information about the distribution of the heights of all the trees in a wood.



(a) Write down the median height of the trees.

..... m

(1)

(b) Work out the interquartile range of the heights of the trees.

..... m

(1)

There are 300 trees in the wood. *Sample student 1, Page 15 /48*

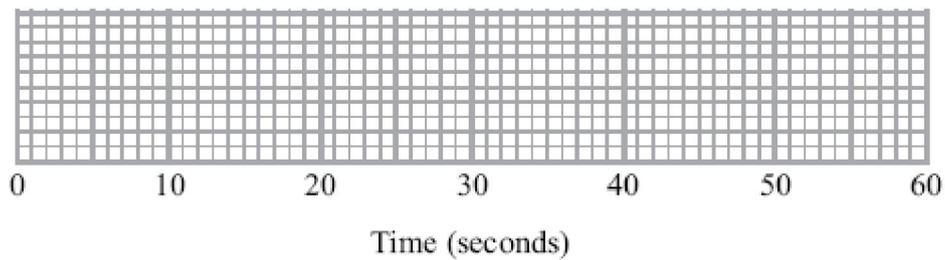
(c) Work out the number of trees in the wood with a height of 17 m or more.

5) Box plots: Harder

7. Here are the times, in seconds, that 15 people waited to be served at Rose's garden centre.

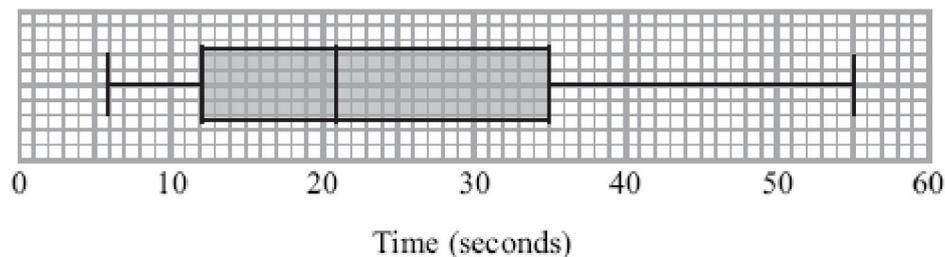
5 9 11 14 15 20 22 25 27 27 28 30 32 35 44

(a) On the grid, draw a box plot for this information.



(3)

The box plot below shows the distribution of the times that people waited to be served at Green's garden centre.



(b) Compare the distribution of the times that people waited at Rose's garden centre and the distribution of the times that people waited at Green's garden centre.

.....

.....

.....

.....

(2)

Sample student 2

9to1_GCSE_Edexcel_Summer2018_1H

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Your Exam Statistics

Strand	Overall	Number	Algebra	Data	Shape	Ratio
AO1	17 from 30	8 from 12	2 from 8	0 from 3	4 from 4	3 from 3
A02 and 3	10 from 50	0 from 5	3 from 22	2 from 5	2 from 9	3 from 9
Total	27 from 80	8 from 17	5 from 30	2 from 8	6 from 13	6 from 12

Your Pinpoint Topics

- (1) Percentage Profit and Loss Problems. MW: , Hgrty:
- (2) Plans and Elevations II. MWatch: , Hegarty:
- (3) Box plots. MWatch: 187, Hegarty: 434 to 440
- (4) Calculate with Surds. MWatch: , Hegarty: 113-117
- (5) Simplifying Algebraic Fractions. MW: 210a, Hgrty: 229

1) Percentage Profit and Loss Problems: Easier

$$\text{Percentage Profit} = \frac{\text{Actual Profit}}{\text{Original amount}} \times 100$$

$$\text{Percentage Loss} = \frac{\text{Actual Loss}}{\text{Original amount}} \times 100$$

- 1) Kate buys a bag of sweets for £10 and sells it for £15.
Work out her percentage profit.

(2 Marks)

- 2) Siobhan buys a bag of 10 courgettes for £2.50. She sells each courgette for 20p.
Work out her percentage loss.

(2 Marks)

- 3) Jude buys 10 bags of potatoes for £13. He sells each bag for £1.50 each. He sells all the bags.
Work out his percentage profit.

(2 Marks)

1) Percentage Profit and Loss Problems: Medium

- 4) Sally buys 10Kg of sweets. She pays £12 for the sweets. She puts all the sweets into bags. She puts 200g into each bag. She sells each bag for 60p. She sells all the bags. Work out her percentage profit.

(3 Marks)

- 5) Margot buys a 5 litre bottle of lemonade for £2.30. She divides it into glasses. She pours 250ml into each glass. She sells all the glasses at 25p each. Work out her percentage profit.

(3 Marks)

1) Percentage Profit and Loss Problems: Harder

- 6) Olumide buys 3 litres of apple juice for £2. He pours all the juice equally into glasses. He sells each glass for 30p. He makes 50% profit.
How much apple juice did he pour into each glass?

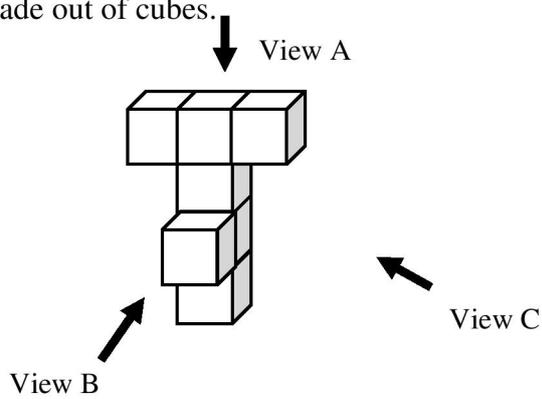
(4 Marks)

- 7) Savannah runs a wholesale dried goods shop. She buys 12Kg of rice for £5 and 10Kg of pasta for £4.
She then sells the rice for 40p per 100g and the pasta for 35p per 100g. Assuming she sells all the pasta and rice and incurs no other costs.
What is her percentage profit?

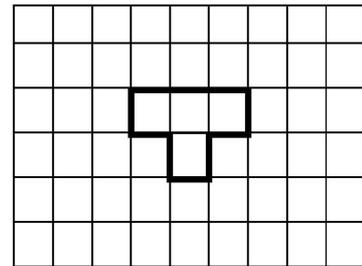
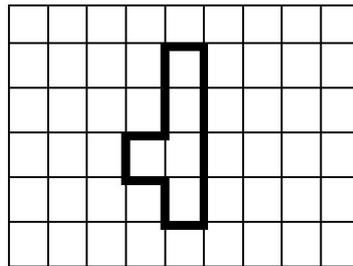
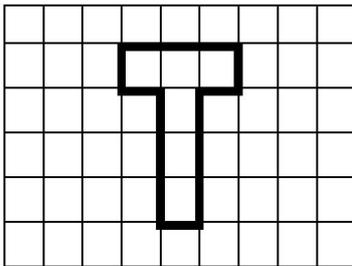
(4 Marks)

2) Plans and Elevations II: Easier

1. A model is made out of cubes.

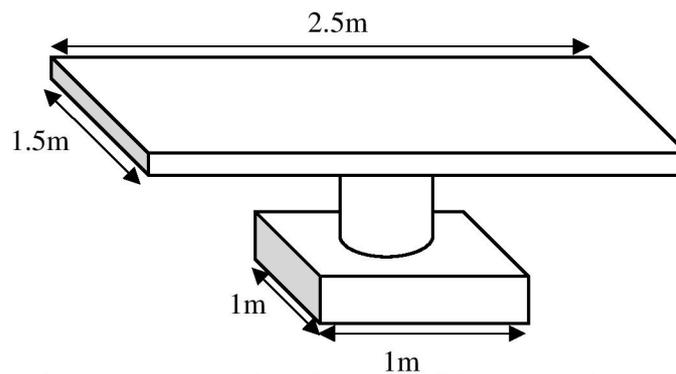


The three diagrams each show the model from a different view.
Label each diagram with the correct view.



..... (3 Marks)

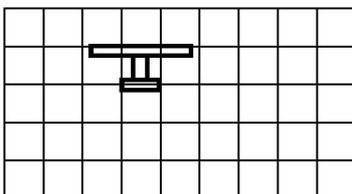
2. The table below is made up of two cuboids and a cylinder.



Each of the diagrams shows a view of the table, to a different scale.

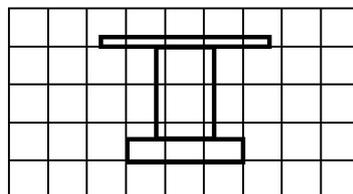
What is the scale used in each of the diagrams?

Front elevation



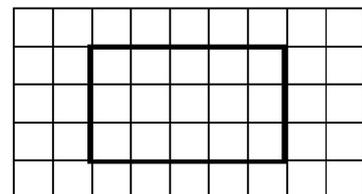
..... squares to 1 m

Side elevation



..... squares to 1 m

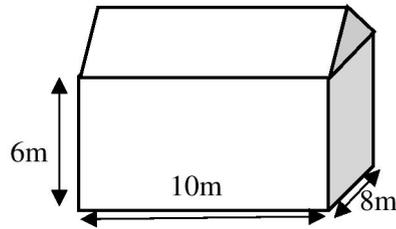
Plan



..... squares to 1 m

2) Plans and Elevations II: Medium

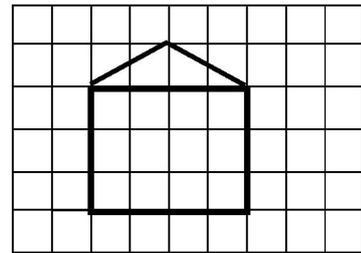
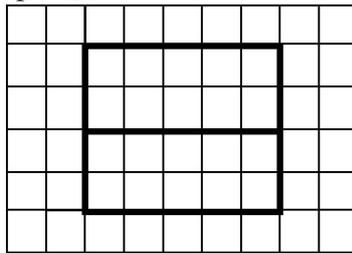
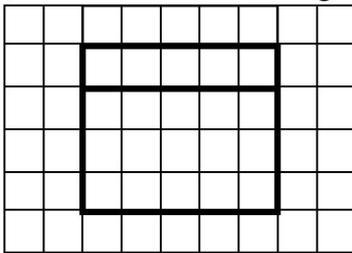
3. The diagrams below show three different views, and three different scales of this house



(a) To what scale are the diagrams drawn?

.....

(b) Label the three diagrams plan, front and side elevations.



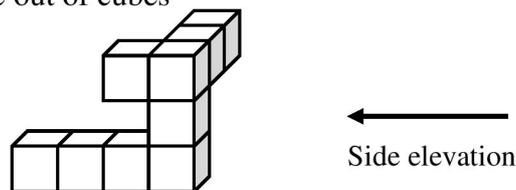
.....

.....

.....

(3 Marks)

4. The solid below is made out of cubes

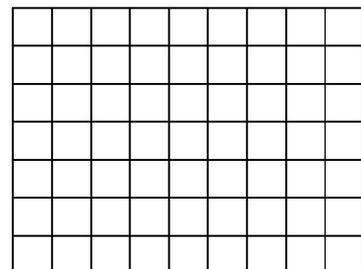
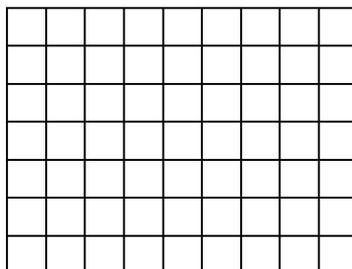
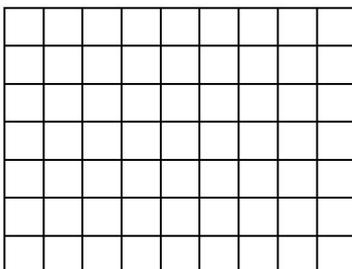


Using the scale 1 square is one cube, draw the plan, front and sides elevations of the solid.

Plan

Front elevation

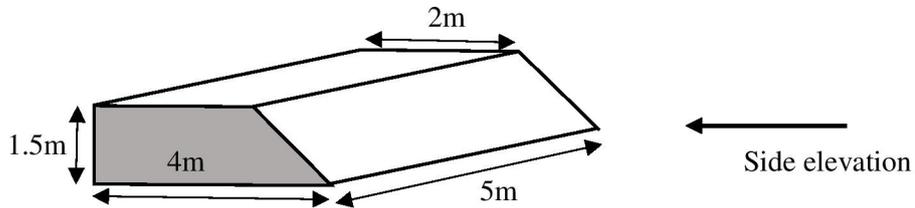
Side elevation



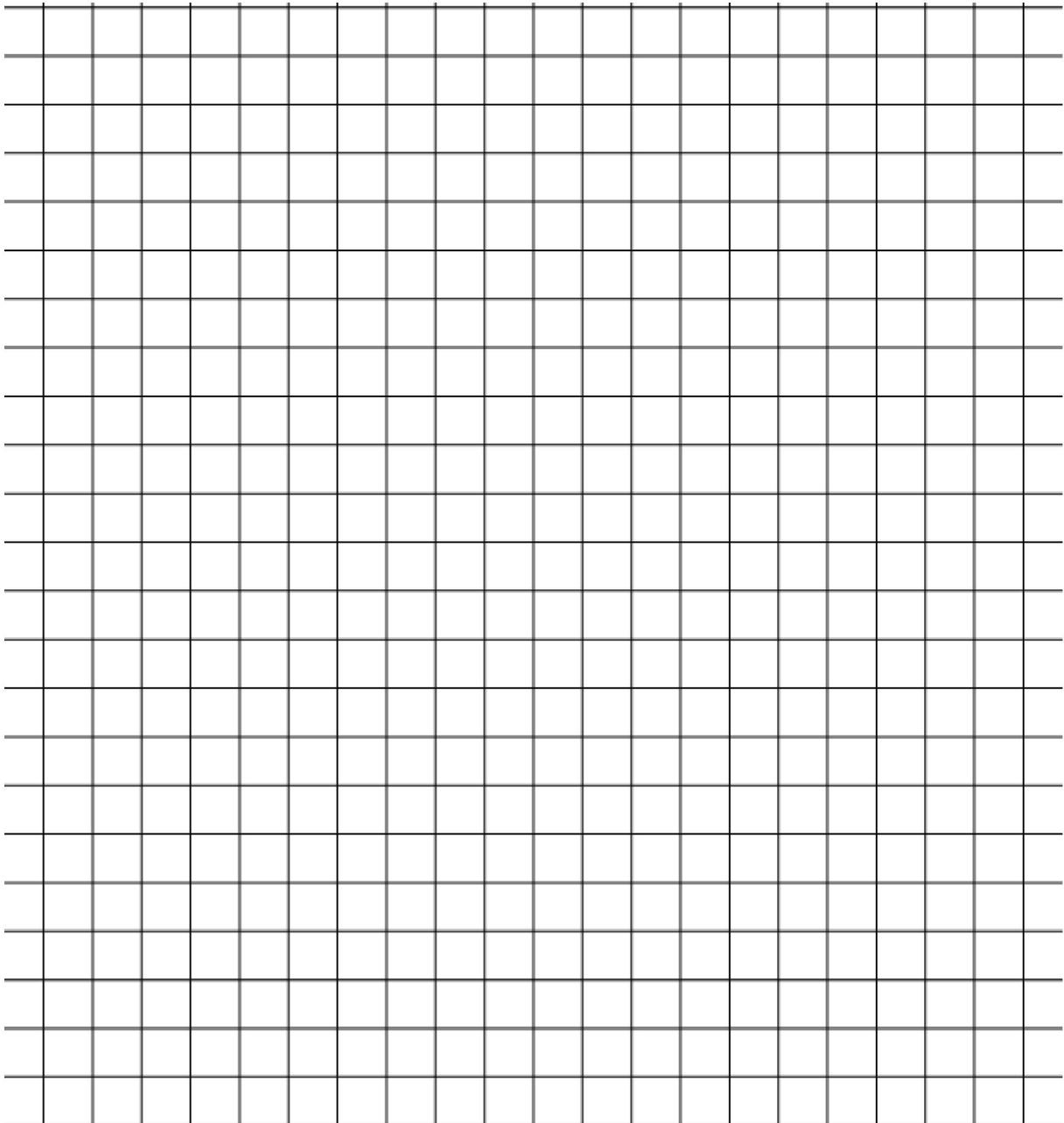
(6 Marks)

2) Plans and Elevations II: Harder

5. The diagram below shows water-ski jump.



Using the scale 2cm is 1m, draw and label the plan, front and sides elevations of the jump on the cm grid below.



(6 marks)

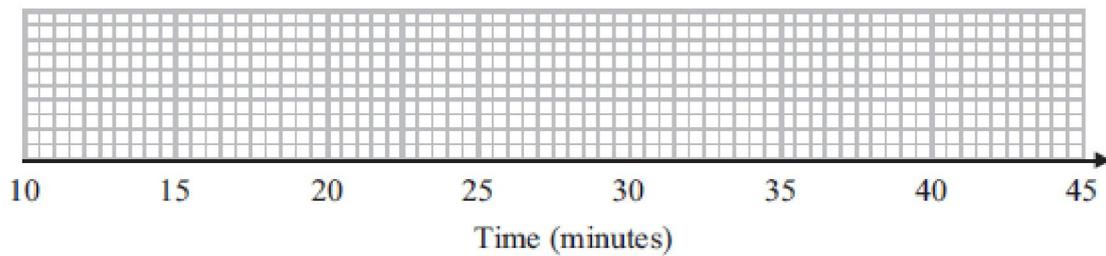
3) Box plots: Easier

2. Sameena recorded the times, in minutes, some girls took to do a jigsaw puzzle.

Sameena used her results to work out the information in this table.

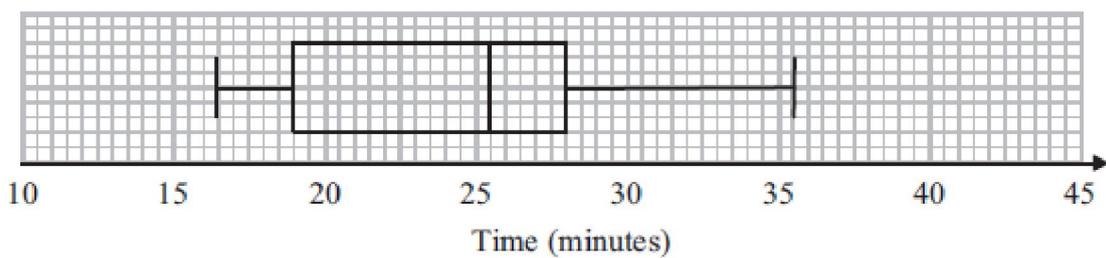
	Minutes
Shortest time	18
Lower quartile	25
Median	29
Upper quartile	33
Longest time	44

(a) On the grid, draw a box plot to show the information in the table.



(2)

The box plot below shows information about the times, in minutes, some boys took to do the same jigsaw puzzle.



(b) Compare the distributions of the girls' times and the boys' times.

.....

.....

.....

.....

(2)

(4 marks)

3) Box plots: Medium

1. Mary recorded the heights, in centimetres, of the girls in her class.

She put the heights in order.

132 144 150 152 160 162 162 167
 167 170 172 177 181 182 182

(a) Find

(i) the lower quartile,

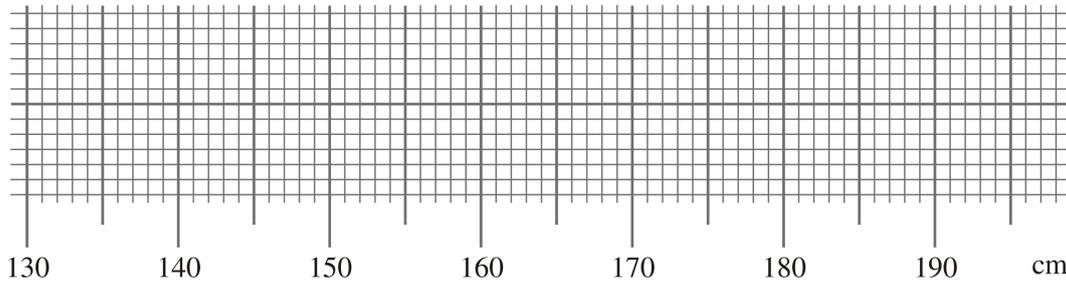
..... cm

(ii) the upper quartile.

..... cm

(2)

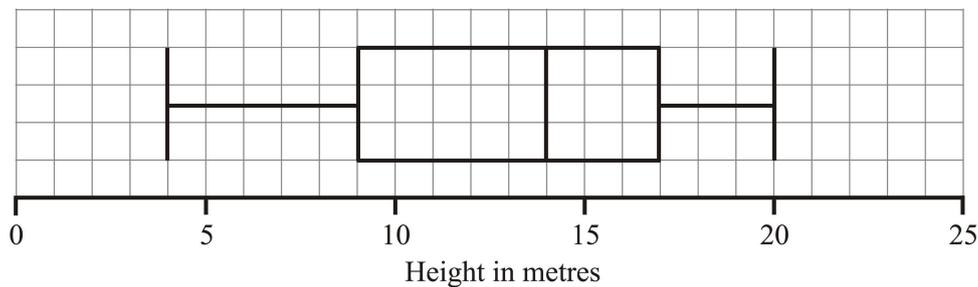
(b) On the grid, draw a box plot for this data.



(3)

(Total 5 marks)

4. The box plot gives information about the distribution of the heights of all the trees in a wood.



(a) Write down the median height of the trees.

..... m

(1)

(b) Work out the interquartile range of the heights of the trees.

..... m

(1)

There are 300 trees in the wood. *Sample student 2, Page 25 /48*

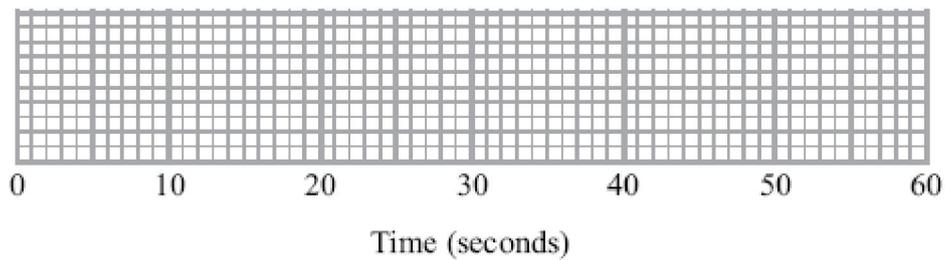
(c) Work out the number of trees in the wood with a height of 17 m or more.

3) Box plots: Harder

7. Here are the times, in seconds, that 15 people waited to be served at Rose's garden centre.

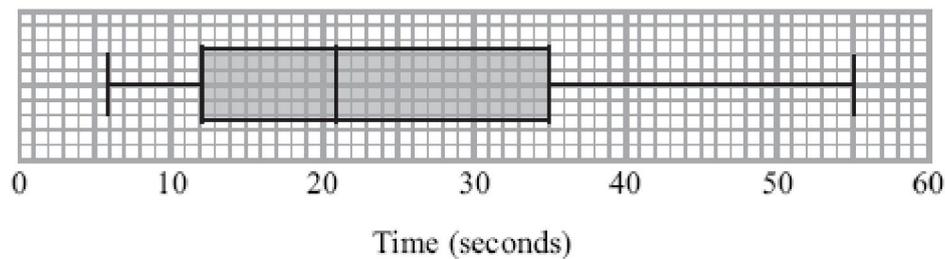
5 9 11 14 15 20 22 25 27 27 28 30 32 35 44

(a) On the grid, draw a box plot for this information.



(3)

The box plot below shows the distribution of the times that people waited to be served at Green's garden centre.



(b) Compare the distribution of the times that people waited at Rose's garden centre and the distribution of the times that people waited at Green's garden centre.

.....

.....

.....

.....

(2)

4) Calculate with Surds: Easier

1) Simplify the following

a) $3\sqrt{2} + 5\sqrt{2}$

(1 Mark)

b) $\sqrt{3} \times \sqrt{2}$

(1 Mark)

c) $3\sqrt{5} \times 2\sqrt{7}$

(1 Mark)

d) $8\sqrt{10} - 2\sqrt{2} \times \sqrt{5}$

(2 Marks)

2) Express $\sqrt{8}$ in the form $a\sqrt{2}$

(1 Mark)

3) Write $2\sqrt{18}$ in the form $b\sqrt{2}$

(1 Mark)

4) Calculate with Surds: Medium

4) Write $5\sqrt{5} + \sqrt{20}$ in the form $a\sqrt{5}$

(2 Marks)

5) Write $\sqrt{5} \times \sqrt{8}$ in the form $b\sqrt{10}$

(2 Marks)

6) Write $\sqrt{600} - \sqrt{24}$ in the form $a\sqrt{6}$

(2 Marks)

4) Calculate with Surds: Harder

7) Write $4(\sqrt{27} + \sqrt{3})$ in the form $a\sqrt{3}$

(3 Marks)

8) Write $\sqrt{7}(\sqrt{32} - \sqrt{8})$ in the form $b\sqrt{14}$

(3 Marks)

9) Write $3\sqrt{10}(\sqrt{20} + 3\sqrt{5})$ in the form $a\sqrt{2}$

(3 Marks)

5) Simplifying Algebraic Fractions: Easier

Q1. Simplify fully

$$\frac{2x - 2}{3x - 3}$$

.....
(2)

Q2.

a) Factorise $x^2 + 5x + 6$

.....
(2)

b) Simplify fully

$$\frac{2x + 6}{x^2 + 5x + 6}$$

.....
(1)

Q3. Simplify fully

$$\frac{5x + 10}{x^2 + 9x + 14}$$

.....
(3)

5) Simplifying Algebraic Fractions: Medium

Q4. Simplify completely

$$\frac{x^2 + 2x - 8}{x^2 - 4}$$

.....

(3)

Q5. Show that $\frac{2x^2+7x-15}{6x^2-7x-3}$ can be written in the form $\frac{ax+b}{cx+d}$ where a, b, c and d are integers to be found.

.....

(4)

Q6. Simplify completely

$$\frac{2x^2 + 13x + 15}{4x^2 - 9} \div \frac{10x - 15}{x^2 + 5x}$$

.....

(3)

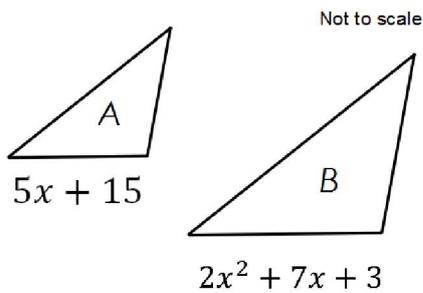
5) Simplifying Algebraic Fractions: Harder

Q7. A ratio is given in the form $2x + 5 : 6x^2 + 19x + 10$, write it in the form $1:n$ where n is an expression in terms of x .

.....

(3)

Q8. The two triangles below are mathematically similar, the area of triangle A is 50cm^2 , show that the area of triangle B is $8x^2 + 8x + 2$



.....

(3)

Q9. The first two terms of a geometric sequence are $2x + 1$ and $6x^2 - x - 2$ respectively. Find an expression for the third term in terms of x

.....

(3)

Sample student 3

9to1_GCSE_Edexcel_Summer2018_1H

Login to www.pinpointlearning.co.uk

Username: Sa500600, Password: PPL

Your Exam Statistics

Strand	Overall	Number	Algebra	Data	Shape	Ratio
AO1	21 from 30	8 from 12	3 from 8	3 from 3	4 from 4	3 from 3
A02 and 3	21 from 50	4 from 5	4 from 22	2 from 5	5 from 9	6 from 9
Total	42 from 80	12 from 17	7 from 30	5 from 8	9 from 13	9 from 12

Your Pinpoint Topics

- (1) Calculate with Surds. MWatch: , Hegarty: 113-117
- (2) Simplifying Algebraic Fractions. MW: 210a, Hgrty: 229
- (3) Trigonometric Graphs. MWatch: , Hegarty: 306
- (4) understanding $y=mx+c$ and gradients. MW: 159, Hgrty: 213 to 216
- (5) Quadratic inequalities. MWatch: 212, Hegarty: 277

1) Calculate with Surds: Easier

1) Simplify the following

a) $3\sqrt{2} + 5\sqrt{2}$

(1 Mark)

b) $\sqrt{3} \times \sqrt{2}$

(1 Mark)

c) $3\sqrt{5} \times 2\sqrt{7}$

(1 Mark)

d) $8\sqrt{10} - 2\sqrt{2} \times \sqrt{5}$

(2 Marks)

2) Express $\sqrt{8}$ in the form $a\sqrt{2}$

(1 Mark)

3) Write $2\sqrt{18}$ in the form $b\sqrt{2}$

(1 Mark)

1) Calculate with Surds: Medium

4) Write $5\sqrt{5} + \sqrt{20}$ in the form $a\sqrt{5}$

(2 Marks)

5) Write $\sqrt{5} \times \sqrt{8}$ in the form $b\sqrt{10}$

(2 Marks)

6) Write $\sqrt{600} - \sqrt{24}$ in the form $a\sqrt{6}$

(2 Marks)

1) Calculate with Surds: Harder

7) Write $4(\sqrt{27} + \sqrt{3})$ in the form $a\sqrt{3}$

(3 Marks)

8) Write $\sqrt{7}(\sqrt{32} - \sqrt{8})$ in the form $b\sqrt{14}$

(3 Marks)

9) Write $3\sqrt{10}(\sqrt{20} + 3\sqrt{5})$ in the form $a\sqrt{2}$

(3 Marks)

2) Simplifying Algebraic Fractions: Easier

Q1. Simplify fully

$$\frac{2x - 2}{3x - 3}$$

.....
(2)

Q2.

a) Factorise $x^2 + 5x + 6$

.....
(2)

b) Simplify fully

$$\frac{2x + 6}{x^2 + 5x + 6}$$

.....
(1)

Q3. Simplify fully

$$\frac{5x + 10}{x^2 + 9x + 14}$$

.....
(3)

2) Simplifying Algebraic Fractions: Medium

Q4. Simplify completely

$$\frac{x^2 + 2x - 8}{x^2 - 4}$$

.....
(3)

Q5. Show that $\frac{2x^2+7x-15}{6x^2-7x-3}$ can be written in the form $\frac{ax+b}{cx+d}$ where a, b, c and d are integers to be found.

.....
(4)

Q6. Simplify completely

$$\frac{2x^2 + 13x + 15}{4x^2 - 9} \div \frac{10x - 15}{x^2 + 5x}$$

.....
(3)

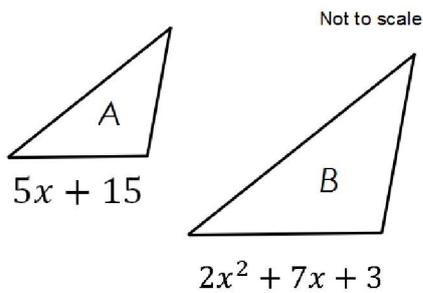
2) Simplifying Algebraic Fractions: Harder

Q7. A ratio is given in the form $2x + 5 : 6x^2 + 19x + 10$, write it in the form $1:n$ where n is an expression in terms of x .

.....

(3)

Q8. The two triangles below are mathematically similar, the area of triangle A is 50cm^2 , show that the area of triangle B is $8x^2 + 8x + 2$



.....

(3)

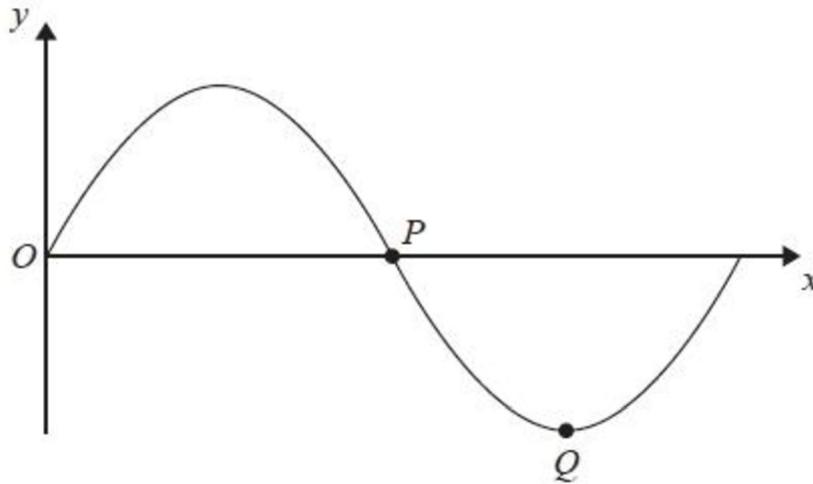
Q9. The first two terms of a geometric sequence are $2x + 1$ and $6x^2 - x - 2$ respectively. Find an expression for the third term in terms of x

.....

(3)

3) Trigonometric Graphs: Easier

Q1. The diagram shows part of a sketch of the curve $y = \sin x^\circ$.



(a) Write down the coordinates of the point P .

(.....,)
(1)

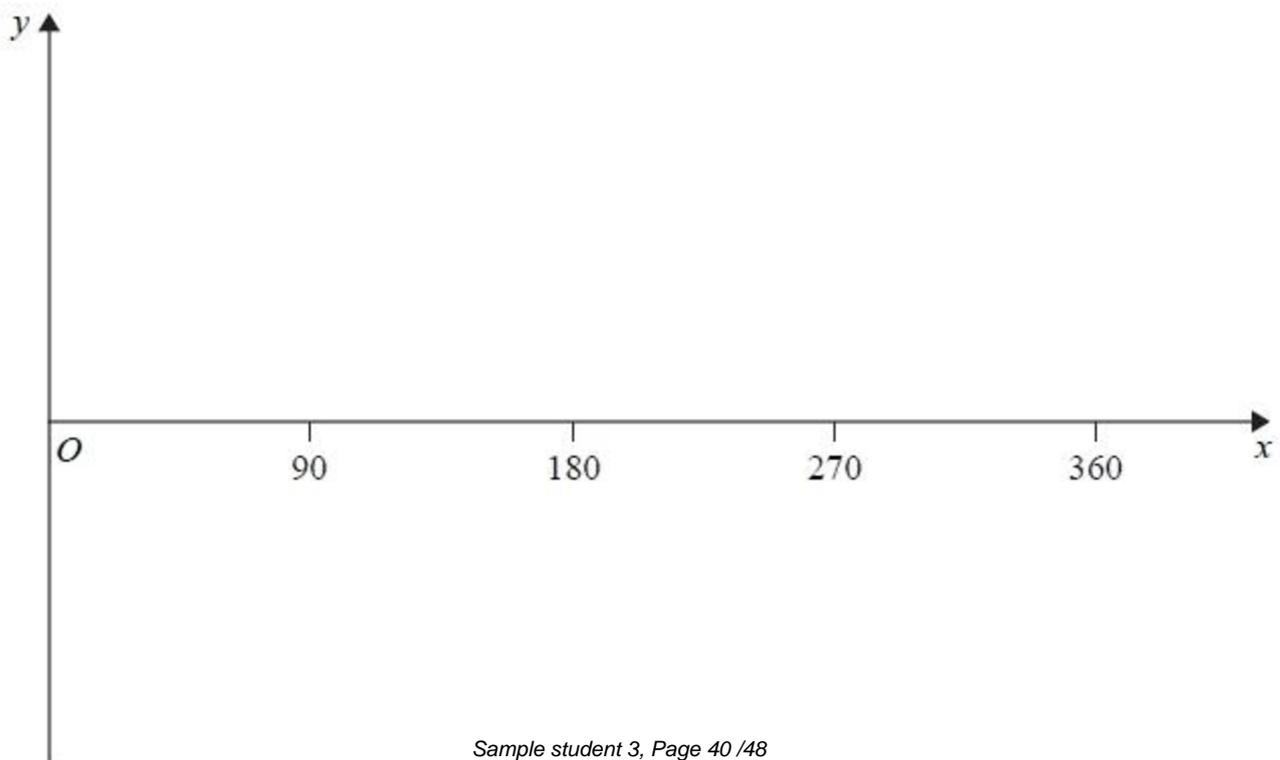
(b) Write down the coordinates of the point Q .

(.....,)
(1)

(Total for Question is 2 marks)

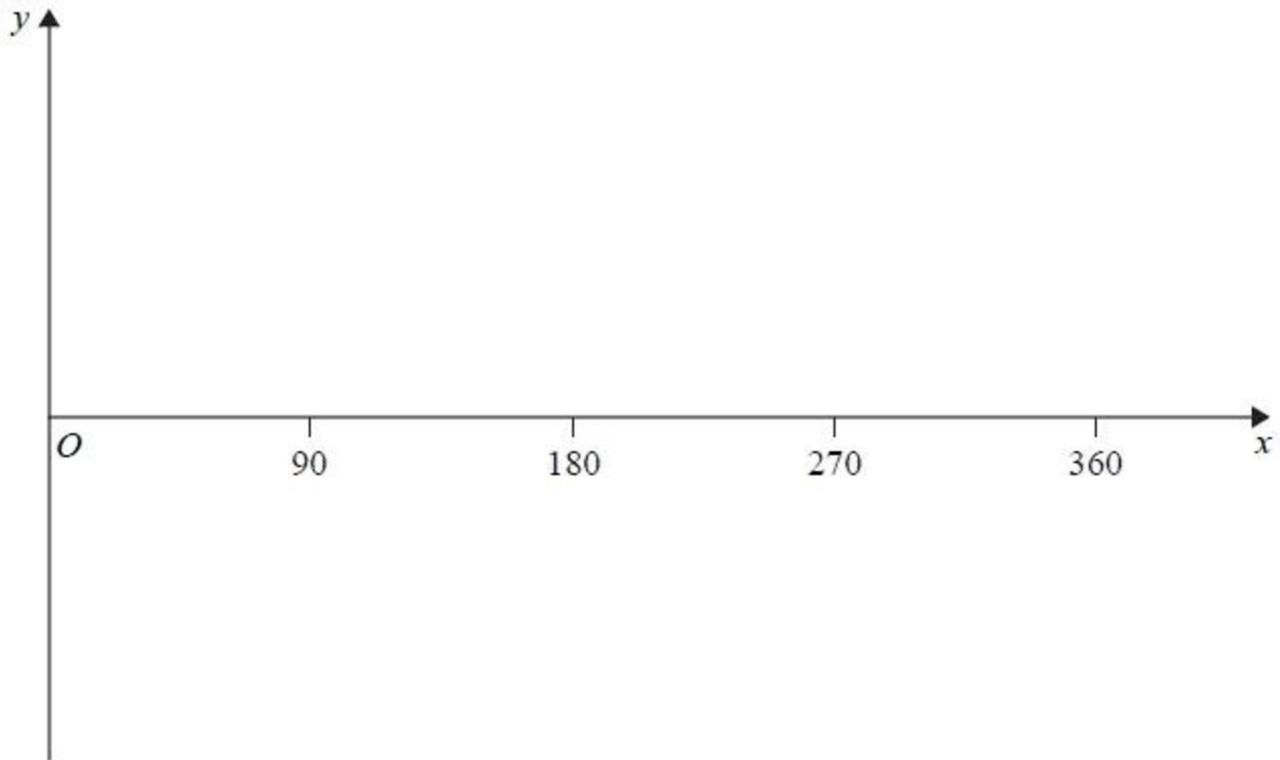
Q2.

(a) Sketch the graph of $y = \cos x^\circ$ for $0 \leq x \leq 360$



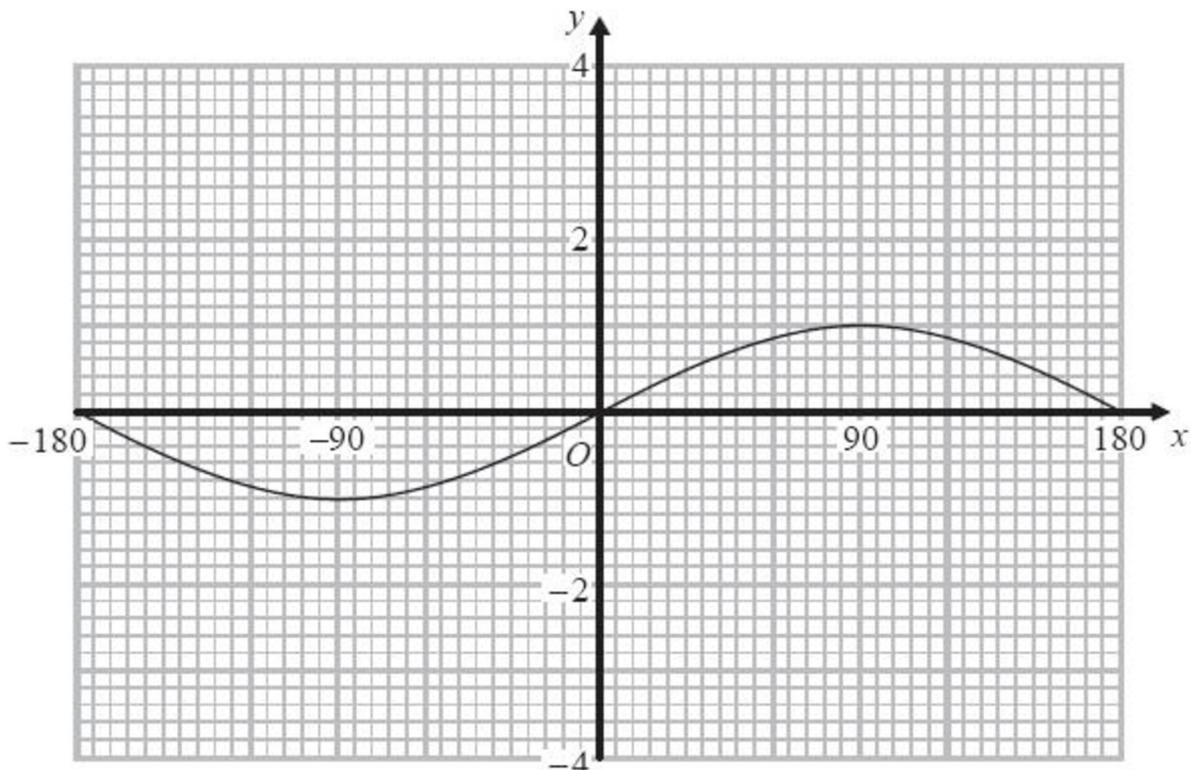
3) Trigonometric Graphs: Medium

(b) Sketch the graph of $y = \tan x^\circ$ for $0 \leq x \leq 360$



(2)
(Total for question is 4 marks)

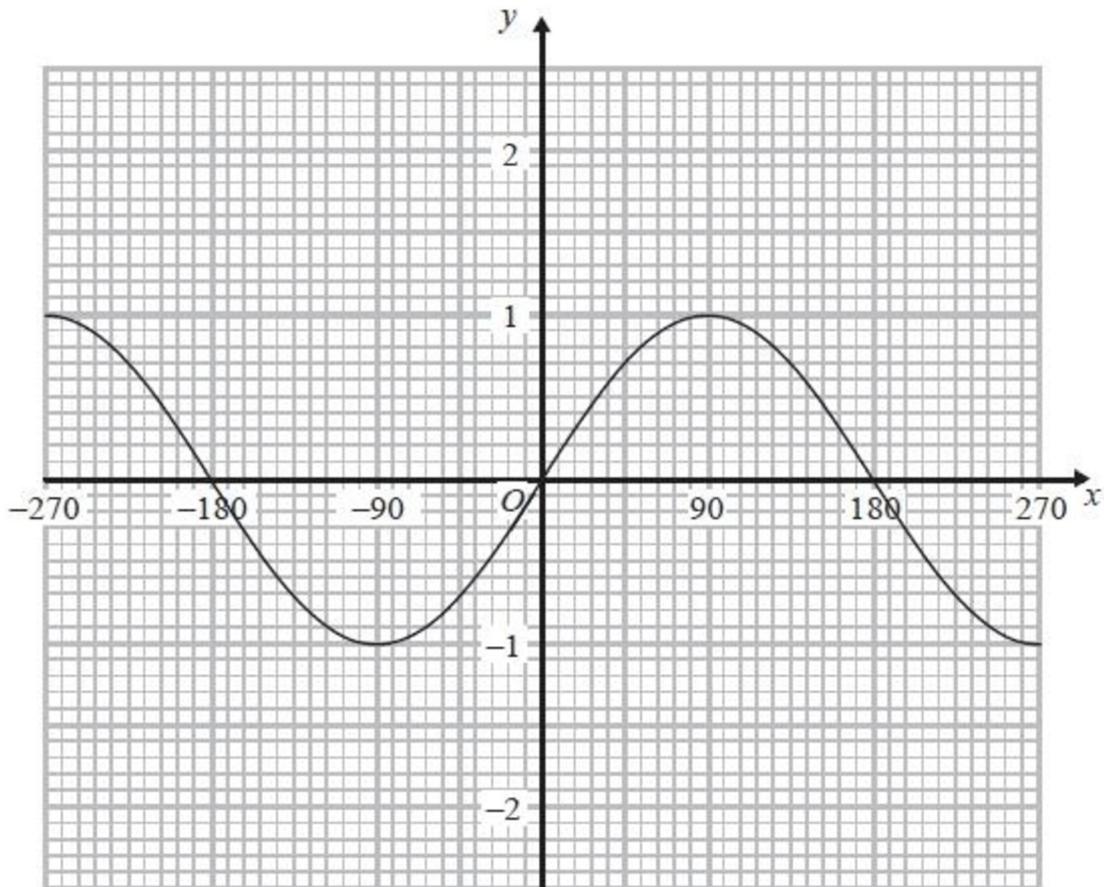
Q3. Here is the graph of $y = \sin x^\circ$ for $-180 \leq x \leq 180$



On the grid above, sketch the graph of $y = \sin x^\circ + 2$ for $-180 \leq x \leq 180$

(2)

3) Trigonometric Graphs: Harder



The graph of $y = \sin x^\circ$ for values of x from -270 to $+270$ is shown above.

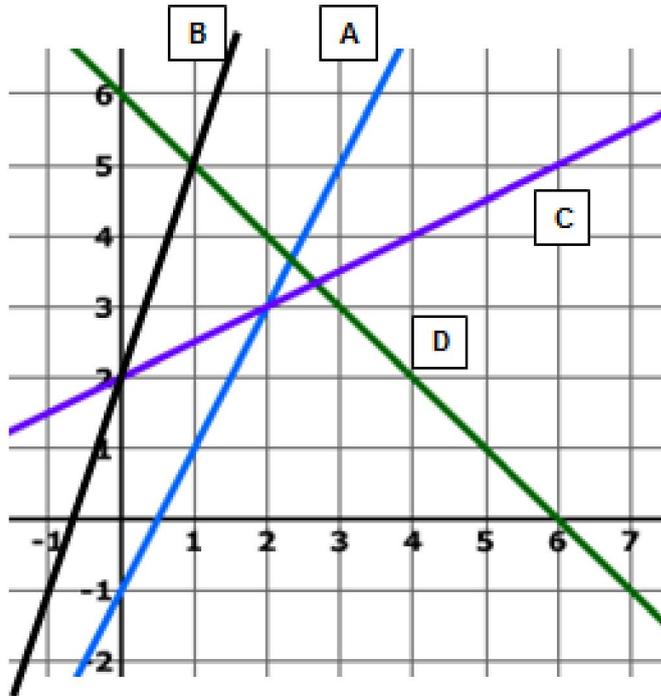
(b) On the same axes, draw the graph of $y = 1 - \sin x^\circ$ for values of x from -270 to $+270$

(2)

(Total for question is 4 marks)

4) understanding $y=mx+c$ and gradients: Easier

Find the Equation! - $y=mx+c$



Answers

A $m = \underline{\quad}$ $c = \underline{\quad}$

Equation
 $y = \underline{\quad}$

B $m = \underline{\quad}$ $c = \underline{\quad}$

Equation
 $y = \underline{\quad}$

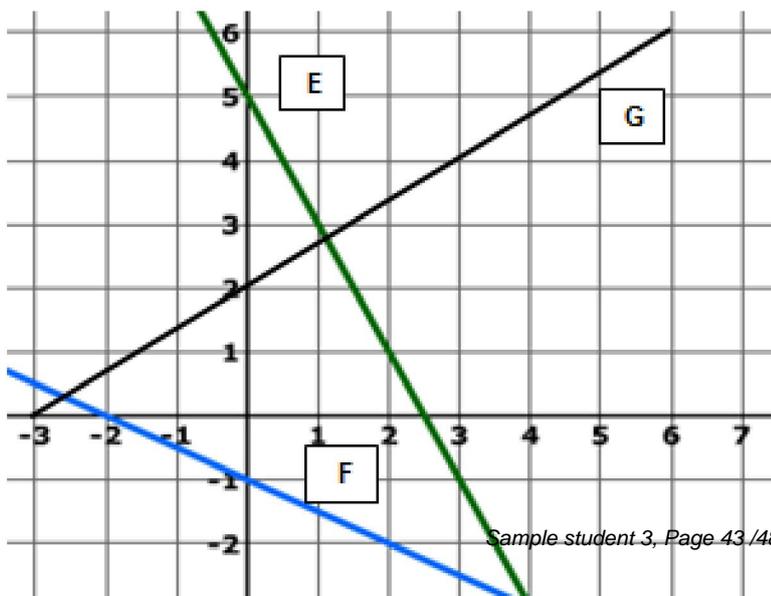
C $m = \underline{\quad}$ $c = \underline{\quad}$

Equation
 $y = \underline{\quad}$

D $m = \underline{\quad}$ $c = \underline{\quad}$

Equation
 $y = \underline{\quad}$

Part 2



E $m = \underline{\quad}$ $c = \underline{\quad}$

Equation
 $y = \underline{\quad}$

F $m = \underline{\quad}$ $c = \underline{\quad}$

Equation
 $y = \underline{\quad}$

G $m = \underline{\quad}$ $c = \underline{\quad}$

Equation
 $y = \underline{\quad}$

4) understanding $y=mx+c$ and gradients: Medium

- 1) Find the equation of a line parallel to $y = 4x + 3$ which passes through the point $(0,2)$.

.....

(2 Marks)

2)

Question

Find the gradient of the line which goes through these points

$(1, 4)$ $(5, 28)$

.....

(3 Marks)

- 3) Find the equation of a line with gradient 1 passing through $(5,2)$

.....

(3 Marks)

4) understanding $y=mx+c$ and gradients: Harder

4) Find the equation of a Line with gradient 2 passing through (4,6)

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(3 Marks)

5). Find the equation of a line passing through (4,6) and (6,12)

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(4 Marks)

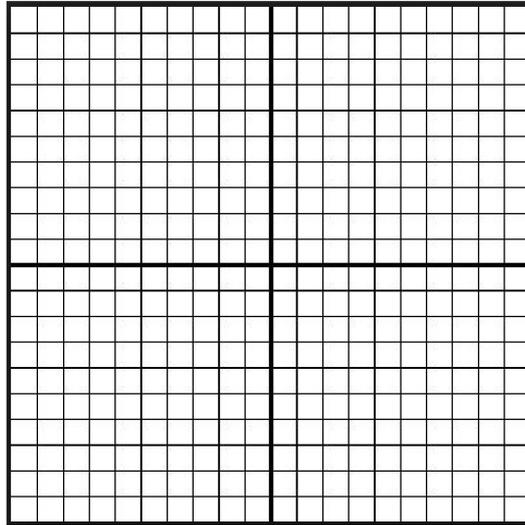
6). What is the gradient of line perpendicular to $y = 3x + 1$ passing through (1, 9)?

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(5 Marks)

5) Quadratic inequalities: Easier

- 1) a) Plot the graph of $y = x^2 - 4$ for $-3 \leq x \leq 3$



(2 Marks)

- b) Using the graph, solve the inequality $x^2 - 4 \geq 0$

(2 Marks)

- 2) a) Factorise $x^2 + x - 6$

(2 Marks)

- b) Solve $x^2 + x - 6 = 0$

(2 Marks)

5) Quadratic inequalities: Medium

c) Sketch the graph of $y = x^2 + x - 6$, showing where the graph cuts the x axis and y axis

(2 Marks)

d) Use your sketch to solve $x^2 + x - 6 \leq 0$

(2 Marks)

3) Solve $x^2 > 2x + 15$

(2 Marks)

4) Solve $6(1 - x^2) \leq -1$

(2 Marks)

5) Quadratic inequalities: Harder

- 5) James is making painted boxes. He wants the surface area of his boxes to be larger than 144cm^2 in order for his design to fit. He also wants the ratio of the side's lengths to be 1:2:2. Find an inequality that the shortest length must satisfy.

(3 Marks)

-
- 6) Solve $x^2 + 4x > 2$ **and** $3(x^2 + 2) > -2x$

(3 Marks)