



A Level Maths Bridging Course

Congratulations on your choice to study Mathematics at A-level! Mathematics at A-level is both a demanding and rewarding course. The Mathematics Department at Kineton High School is committed to ensuring that you make good progress throughout your A-level course. To ensure that you make the best possible start to the course, we have prepared this booklet.

It is vitally important that you spend time working through all sections of this booklet over the summer - you will need to have a good knowledge of these topics before you commence your course in September. You should have met all the topics before at GCSE (there is nothing new here!) There are a number of sections in this booklet covering what we deem to be the basic skills required to start your A-level course on the best footing. As a result, if you find that you are struggling with a particular section or set of questions, you must seek to independently review this area of mathematics using the sources of information detailed in this booklet or your own GCSE notes/revision guides/web resources. For each topic there are video numbers (see pages 4 - 5) – these correspond to videos on the Corbett Maths website (www.corbettmaths.com/contents) which has help videos to explain each topic in detail.

During your first maths lesson in September, the work completed from this booklet must be handed to your class teacher.

**Pure Maths – Mrs Beattie
Statistics – Ms Jackson**

Any pupil who has not completed this work over the summer, having had the opportunity to do so, is unlikely to have the level of commitment required in order to succeed in A-level maths.

We hope that you will use this introduction to give you a good start to your A-level work and that it will help you enjoy and benefit from the course.

You may find the following websites useful:

<https://www.corbettmaths.com/contents>

Revision videos (specific video numbers given on pages 4 - 5)

<https://www.examsolutions.net/gcse-maths/>

Revision videos and exam questions

<http://themathsteacher.com/gcse-maths>

Revision videos and worksheets

<http://www.bbc.co.uk/schools/gcsebitesize/maths/>

Information, videos and online tests

<http://mrbartonmaths.com/topics/>

Revision videos, lessons and online worksheets

Contents

<u>Topic</u>	<u>Page number</u>
GCSE topics needed for A-level maths	4 – 5
Basic algebra	6
Straight line graphs	7
Quadratics	8
Other types of graph	9
Pythagoras and trigonometry	10 - 11
Graph transformations	12
Inequalities	13
Simultaneous equations	14
Algebraic fractions	15
Index laws	16
Surds	17
Representing and interpreting data	18 - 22
Probability	23 - 24

For each topic there are questions contained within a red box – **only these questions need to be handed into your teacher for marking.**

The rest of the questions will be checked by your teacher for completion during your first few lessons in September, but self-marked.

Please complete the questions in the red boxes on a separate piece of paper to the self-marked questions.

GCSE topics that are needed for A level maths

The number in brackets next to each topic is the Corbett Maths help video.

These can be found at www.corbettmaths.com/contents

Basic algebra

- Expanding and factorising single brackets [[13](#), [117](#)]
- Expanding and factorising double brackets [[14](#), [118](#), [119](#), [120](#)]
- Solving linear equations [[110](#), [111](#), [112](#), [113](#)]
- Rearranging formulae [[7](#), [8](#)]

Straight line graphs

- Finding the distance between two coordinates [[263](#)]
- Finding the midpoint of two coordinates [[198](#)]
- Finding the equation when given coordinates [[195](#)]
- Equations of parallel and perpendicular lines [[196](#), [197](#)]

Quadratics

- Solving quadratic equations by factorising [[266](#)]
- Solving quadratic equations using the formula [[267](#)]
- Solving quadratic equations by completing the square [[267a](#)]
- Sketching quadratic graphs [[265](#)]
- Turning points [[371](#)]

Other types of graph

- Cubic graphs [[344](#)]
- Exponential graphs [[345](#)]
- Reciprocal graphs [[346](#)]
- Equation of a circle [[12](#), [372](#)]

Pythagoras and Trigonometry

- Pythagoras in both 2D and 3D [[257](#), [259](#)]
- SOHCAHTOA [[330](#), [331](#)]
- Sine rule [[333](#), [334](#), [334a](#)]
- Cosine rule [[335](#), [336](#)]
- Area of a triangle [[337](#)]
- Trigonometric graphs [[338](#), [339](#), [340](#)]

Graph transformations

- All graph transformations taught at GCSE [[323](#)]

Inequalities

- Solving linear inequalities [[178](#), [179](#)]
- Solving quadratic inequalities [[378](#)]
- Inequalities on a graph [[180](#), [181](#), [182](#)]

Simultaneous equations

- Solving by elimination [[295](#)]
- Solving by substitution [[296](#)]
- Quadratic simultaneous equations [[298](#)]

Algebraic fractions

- Simplifying [[24](#)]
- Adding and subtracting [[21](#)]
- Multiplying and dividing [[22](#), [23](#)]

Index laws

- All index laws taught at GCSE [[173](#), [174](#), [175](#)]

Surds

- Simplifying [[305](#)]
- Multiplying and dividing [[305](#)]
- Adding and subtracting [[306](#)]
- Rationalising the denominator [[307](#)]

Representing and interpreting data

- Averages from tables [[51](#), [52](#), [54](#), [55](#)]
- Scatter graphs and correlation [[166](#), [167](#), [168](#)]
- Cumulative frequency graphs [[153](#), [154](#)]
- Box plots [[149](#), [150](#)]
- Frequency polygons [[155](#)]
- Histograms [[157](#), [158](#), [159](#)]

Probability

- Tree diagrams [[252](#)]
- Venn diagrams [[379](#), [380](#)]

Basic Algebra

1) Expand the following:

- a. $4(2x - 7)$
- b. $5x(3x + 4)$
- c. $2xy(6x - y)$
- d. $8x(3x^2 + 3y)$
- e. $-x^2yz^4(3x - 2y^2z)$

2) Factorise the following:

- a. $8x + 24$
- b. $8x^2 + 20$
- c. $6xy + 14y^2$
- d. $10x^2 - 15x^3$
- e. $4x^3y^3z - 10xy + 12x^2yz^2$

3) Expand and simplify the following:

- a. $(x + 5)(x - 7)$
- b. $(2x - 1)(x - 6)$
- c. $(x - 8)^2$
- d. $5(3x + 1)(2x - 3)$
- e. $3x(2x + 7)^2$

4) Factorise the following:

- a. $x^2 - 3x - 18$
- b. $x^2 - 13x + 36$
- c. $3x^2 - x - 10$
- d. $x^2 - 121$
- e. $12x^2 - 3$

5) Solve the following:

- a. $\frac{x}{4} + 1 = 16$
- b. $2(9 - x) = 3(x + 16)$
- c. $\frac{15 - 2x}{3} = 2x - 3$
- d. $\frac{3x - 4}{3} = \frac{2x - 1}{4}$
- e. $\frac{x}{2} + \frac{4x + 1}{10} = -8$

6) Make x the subject of the following:

- a. $x^3 - 4 = 5y$
- b. $v = \pi x^2 h$
- c. $s = uy + \frac{1}{2}xy^2$
- d. $\frac{3x + 2}{n} = \frac{x + 1}{b}$
- e. $w = 6 + \frac{x}{c + 2}$

Teacher marked questions (hand into Mrs Beattie)

1) Expand and simplify $(2a - 3)(b - a) - 3a(3a + b)$

2) Solve $\frac{6x + 3}{2} + 2x = 3x - 5(x - 1)$

3) Make y the subject of $\sqrt{\frac{3xy}{x + y}} = 4$

Straight Line Graphs

- 1) Calculate the distance between $(7, 4)$ and $(-2, -9)$.
- 2) The distance MN is 5, where M is the point $(4, -2)$ and N is the point $(a, 2a)$.
Find the two possible values of the constant a .
- 3) Find the midpoint of the coordinates $(-3, -2)$ and $(-1, 13)$.
- 4) The midpoint of the point $A(1, -3)$ and the point $B(x, y)$ is $(4, 3)$.
Find the values of x and y .
- 5) The midpoint of the point $P(6, 0)$ and the point $(x + 2, -3y)$ is $(9, -10.5)$.
Find the values of x and y .
- 6) Find the gradient and y -intercept of the line $2x + 4y = 6$.
- 7) Find the gradient and y -intercept of the line $3(x + 5y) = 9$.
- 8) Find the equation of the straight line that passes through the points $(0, 3)$ and $(2, 7)$.
- 9) Find the equation of the straight line that passes through the points $(10, 3)$ and $(-15, -7)$.
- 10) Find the equation of a line that is parallel to the line $y = -6x + 7$.
- 11) Find the equation of a line that is perpendicular to the line $3x - 4y = 5$.
- 12) Find the equation of the line through $(4, 10)$ which is perpendicular to the line $y = -\frac{2}{3}x + 2$.

Teacher marked questions (hand into Mrs Beattie)

- 1) The equation of line A is $2x + y = 3$.
Line B is parallel to line A and passes through $(1, -6)$.
Find the equation of line B.
- 2) The point P has coordinates $(3, 4)$. The point Q has coordinates (a, b) .
A line perpendicular to PQ is given by the equation $3x + 2y = 7$.
Find an expression for b in terms of a .

Quadratics

1) Solve the following equations, giving your answers to 1 decimal place where necessary:

a. $x^2 + 9x + 14 = 0$

b. $x^2 - x - 20 = 0$

c. $x^2 - 4x - 2 = 0$

d. $x^2 - x - 8 = 2x + 2$

e. $3x^2 - 23x - 67 = 0$

f. $7x = 13 - x^2$

g. $\frac{3}{x-4} = x - 2$

2) Sketch the following graphs, labelling the points where the graph crosses the x- and y-axes:

a. $y = x^2 + 6x + 8$

b. $y = 3x^2 - 16x - 12$

c. $y = 16 - 8x - x^2$

3) Find the coordinates of the turning points of the following graphs:

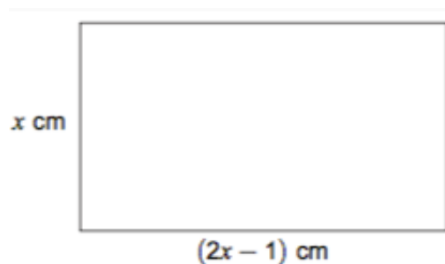
a. $y = x^2 - 6x - 1$

b. $y = x^2 + 8x + 5$

c. $y = x^2 + 10x - 8$

Teacher marked questions (hand into Mrs Beattie)

- 1) The diagram shows a rectangle with an area of 9 cm^2 .
Find the value of x giving your answer to 3 significant figures.



- 2) Solve $\frac{4}{x-2} + \frac{1}{x+3} = 5$ giving your answers to 1 decimal place.
- 3) Sketch the graph of $y = x^2 - 6x - 20$ clearly labelling the x- and y-intercepts and the coordinate of the turning point.

Other Types of Graph

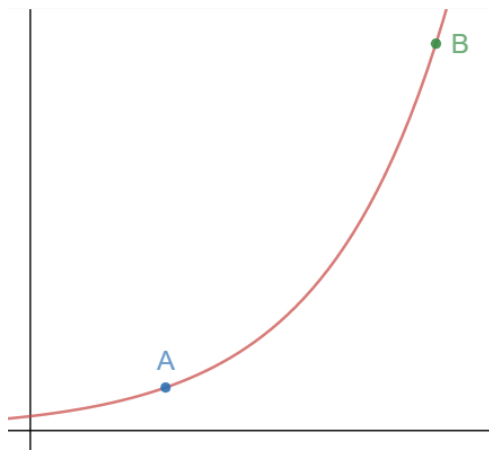
1) On separate axes, sketch the following graphs:

- a. $y = x^3$
- b. $y = -x^3$
- c. $y = 2^x$
- d. $y = \frac{1}{x}$
- e. $y = \frac{8}{x}$

2) The graph below has an equation of the form $y = a \times b^x$.

A is the point (1, 6) and B is the point (3, 54).

Find the equation of the graph by determining the values of a and b .



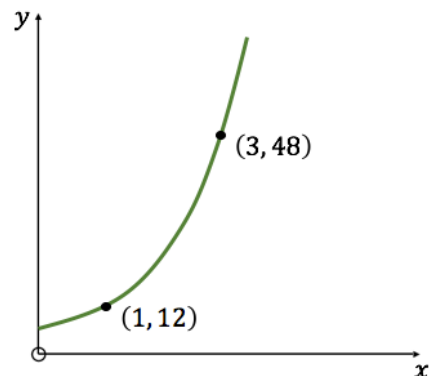
3) For each of the following circles, state the coordinates of the centre of the circle and the radius of the circle:

- a. $x^2 + y^2 = 64$
- b. $(x + 3)^2 + (y - 2)^2 = 196$
- c. $(x - 9)^2 + (y - 1)^2 = 54$

Teacher marked questions (hand into Mrs Beattie)

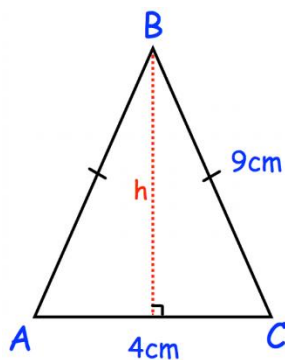
1) Sketch $x^2 + (y + 5)^2 = 49$ clearly indicating the coordinates of the centre of the circle and its radius.

2) The graph has an equation of the form $y = a \times b^x$
Find the values of a and b .

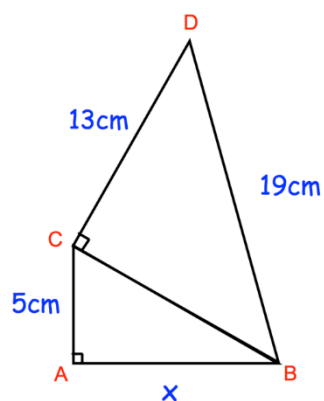


Pythagoras and Trigonometry

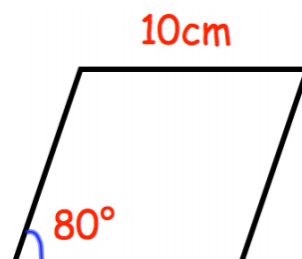
- 1) Calculate the area of triangle ABC to 3 significant figures.



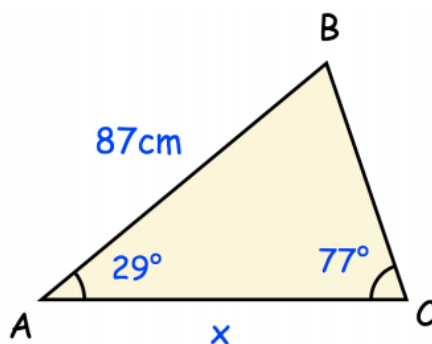
- 2) Find the length of AB to 2 decimal places.



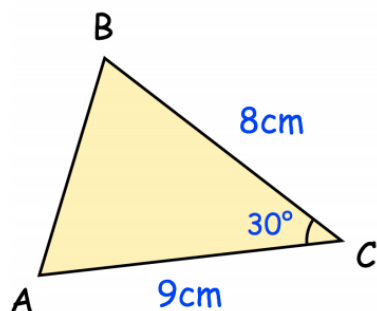
- 3) Calculate the area of the rhombus giving your answer to 3 significant figures.



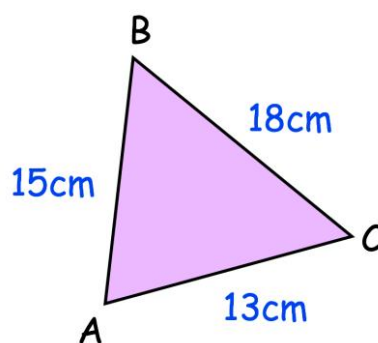
- 4) Calculate the length of AC giving your answer to 2 decimal places.



- 5) Calculate the perimeter of triangle ABC giving your answer to 1 decimal place.



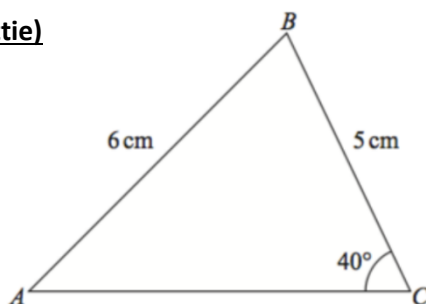
- 6) Find the size of the smallest angle in this triangle giving your answer to 1 decimal place.



- 7) Parallelogram $ABCD$ has side lengths $AB = 5$ cm and $BC = 9$ cm.
Angle $BCD = 55^\circ$.
Find the area of the parallelogram.
Give your answer to 2 decimal places.

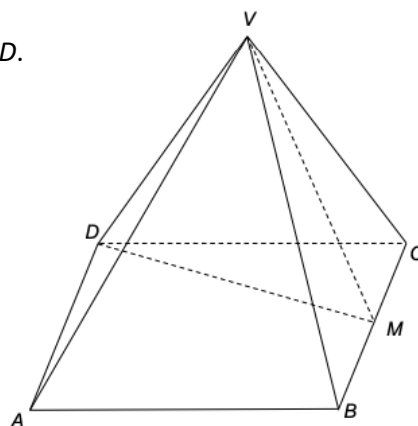
Teacher marked questions (hand into Mrs Beattie)

- 1) Calculate the area of triangle ABC .
Give your answer correct to 3 significant figures.



- 2) $VABCD$ is a pyramid with horizontal rectangular base $ABCD$.
 V is directly above the centre of the base.
 $VA = VB = VC = VD = 10$ cm
 $AB = 8$ cm
 $BC = 6$ cm
 M is the midpoint of BC .

Work out the size of angle VMD to the nearest degree.



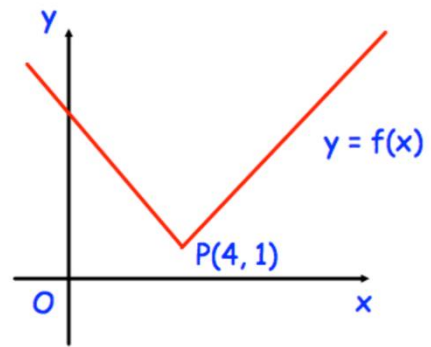
Graph Transformations

- 1) The graph of $y = f(x)$ is shown.

The point $P(4, 1)$ is a point on the graph.

State the coordinates of the new position of P when the graph $y = f(x)$ is transformed to the graph:

- a. $y = -f(x)$
- b. $y = f(x) + 4$
- c. $y = f(x + 5)$
- d. $y = f(-x)$

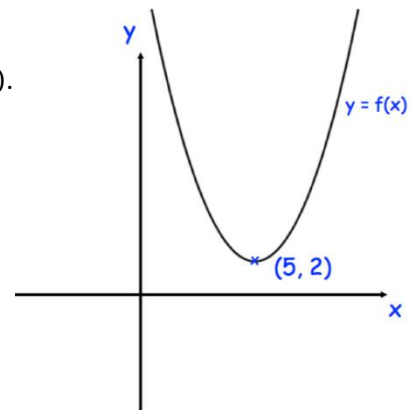


- 2) The graph of $y = f(x)$ is shown.

The coordinates of the minimum point of the curve are $(5, 2)$.

Write down the coordinates of the minimum point of the curve with equation:

- a. $y = f(x) - 4$
- b. $y = f(x - 2)$
- c. $y = f(-x)$
- d. $y = f(x - 1) + 3$

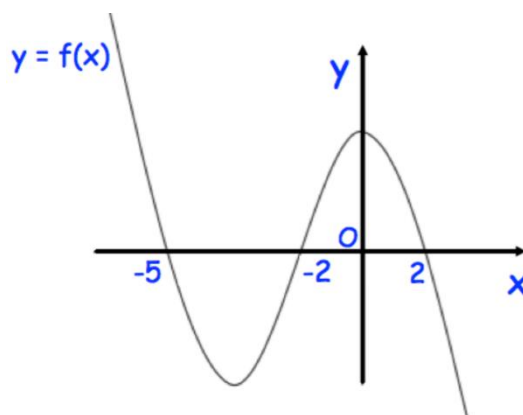


Teacher marked question (hand into Mrs Beattie)

- 1) The graph of $y = f(x)$ cuts the x-axis when $x = -5, -2$ and 2 .

Write down the coordinates of the points where these graphs cut the x-axis:

- a. $y = -f(x)$
- b. $y = f(x - 4)$
- c. $y = f(-x)$



Inequalities

1) Solve the following inequalities:

a. $2(5x + 1) \leq 36$

b. $\frac{x+9}{3} > 7$

c. $9x + 4 < 7x + 15$

d. $9 \leq 2x + 3 \leq 25$

e. $-9 < \frac{x}{4} + 1 < -8$

2) Solve the following inequalities:

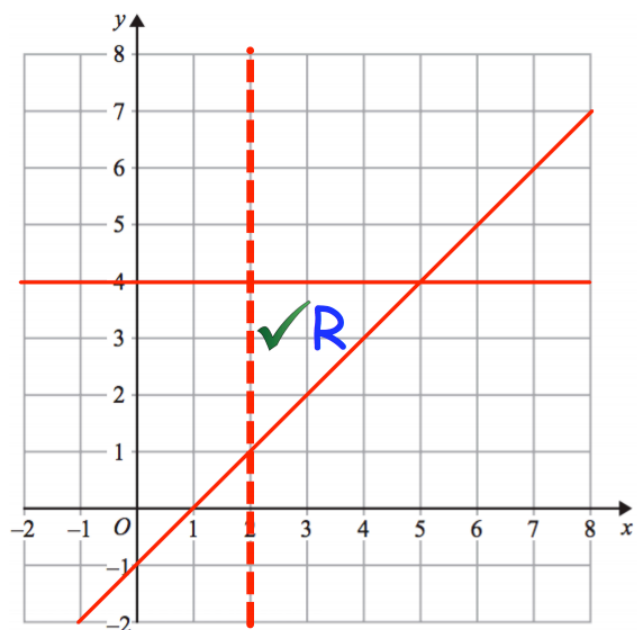
a. $x^2 - 4x - 5 \leq 0$

b. $x^2 - 14x + 48 > 0$

c. $x^2 + 6x < 36 - 10x$

d. $x(2x + 1) \geq 6$

3) State the three inequalities that are satisfied by the region labelled R.

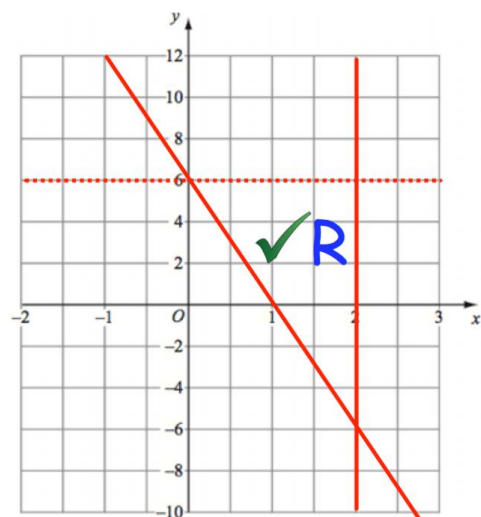


Teacher marked questions (hand into Mrs Beattie)

1) Solve the inequality $\frac{3(2x-1)}{5} \geq 6$

2) Solve the inequality $5x^2 + 7x + 2 > 0$

3) State the three inequalities that are satisfied by the region labelled R.



Simultaneous Equations

1) Solve the following simultaneous:

a.
$$\begin{aligned} 3x + 8y &= 31 \\ 5x + 3y &= 31 \end{aligned}$$

b.
$$\begin{aligned} 2x + 6y &= 4 \\ x &= 12 + 2y \end{aligned}$$

c.
$$\begin{aligned} 2(3x + y + 3) &= 0 \\ 7x - 5y - 93 &= 10 \end{aligned}$$

2) Solve the following simultaneous equations:

a.
$$\begin{aligned} y &= x^2 + 5x - 2 \\ y &= x + 3 \end{aligned}$$

b.
$$\begin{aligned} x^2 + y^2 &= 1 \\ x + 2y &= 1 \end{aligned}$$

c.
$$\begin{aligned} 2x^2 + y^2 &= 10 \\ 2x - y &= 5 \end{aligned}$$

Teacher marked questions (hand into Mrs Beattie)

1) Barry buys 200 pieces of stationery for £76.

Of the 200 pieces of stationery, x of them are rulers that cost 50p each and y of them are pens that cost 20p each.

Work out how many rulers Barry buys and how many pens he buys.

2) Solve the simultaneous equations:

$$\begin{aligned} x^2 - y^2 &= 8 \\ 2x + y &= 7 \end{aligned}$$

Algebraic Fractions

1) Simplify the following algebraic fractions:

a. $\frac{2x^2 - 6x}{2x}$

b. $\frac{n^2 - 6n}{n^2 - 3n - 18}$

c. $\frac{2w^2 + 3w + 1}{4w^2 - 1}$

2) Write the following as a single fraction in its simplest form:

a. $\frac{3x - 2}{4} \times \frac{8x + 3}{9x - 6}$

b. $\frac{2x - 1}{4y} \div \frac{6x - 3}{y^2}$

c. $\frac{3a^2}{a^2 - 1} \times \frac{a^2 + 6a - 7}{a^2 + 7a}$

d. $\frac{b^2 + 6b - 16}{b^2 - 6b + 8} \div \frac{b^2 + 11b + 24}{b^2 - 8b + 16}$

3) Write the following as a single fraction in its simplest form:

a. $\frac{5x}{8} + \frac{x - 3}{6}$

b. $\frac{4}{2a + 3} - \frac{1}{4a - 1}$

c. $\frac{8}{m - 4} + \frac{3}{m^2 - 16}$

Teacher marked questions (hand into Mrs Beattie)

1) Simplify $\frac{n^2 + 8n + 15}{n^2 + 3n - 10}$

2) Write $\frac{a^2 - 12a + 32}{3a^2 - 24a} \times \frac{7a^2 + 28a}{a^2 - 16}$ as a single fraction in its simplest form.

3) Write $\frac{3}{x - 1} - \frac{15}{x^2 + 3x - 4}$ as a single fraction in its simplest form.

Index Laws

1) Simplify the following:

a. $3a^4 \times 5a^{11}$

b. $\frac{(x^3)^3}{(x^2)^3}$

c. $(4a^2b^4)^3$

d. $\frac{(3m^5n \times mn^3)^3}{3mn^4 \times 3m^6}$

e. $\frac{(2g^8h)^5}{(2gh)^2} \times 4gh$

2) a. Write the following as fractions:

(i) 5^{-3}

(ii) 2^{-5}

(iii) $6y^{-2}$

b. Write $\frac{1}{x^6}$ in index form.

c. Write $\frac{2}{3y^2}$ in index form.

d. Write $\frac{1}{625}$ in the form 5^n

3) a. Evaluate each of the following:

(i) $144^{\frac{1}{2}}$

(ii) $27^{\frac{2}{3}}$

(iii) $81^{\frac{3}{4}}$

(iv) $\left(\frac{4}{25}\right)^{\frac{3}{2}}$

b. Write $\sqrt[5]{x^2}$ in index form.

c. Simplify $(16x^8)^{\frac{3}{4}}$

d. Write $4^{-\frac{5}{2}}$ as a fraction.

e. Evaluate $\left(\frac{1}{64}\right)^{-\frac{2}{3}}$

Teacher marked questions (hand into Mrs Beattie)

1) Simplify $\frac{(3a^2)^2 \times 9}{a^2b^4 \times bc^2}$

2) Evaluate $\left(5\frac{1}{16}\right)^{-\frac{3}{4}}$

3) Write $\frac{8^4}{16} \times \sqrt{2^6}$ in the form 2^n

Surds

- 1) Write the following in the form $a\sqrt{b}$ where a and b are integers:
 - a. $\sqrt{50}$
 - b. $\sqrt{98}$
 - c. $\sqrt{180}$
 - d. $\sqrt{363}$
- 2) Calculate the following:
 - a. $\sqrt{2} \times \sqrt{3} \times \sqrt{6}$
 - b. $2\sqrt{3} \times 6\sqrt{3}$
 - c. $40\sqrt{80} \div 20\sqrt{5}$
 - d. $\sqrt{8} + \sqrt{18}$
 - e. $4\sqrt{27} - \sqrt{75}$
- 3) Expand the following, simplifying your answers where possible:
 - a. $\sqrt{2}(\sqrt{3} + 5)$
 - b. $\sqrt{5}(3\sqrt{2} - \sqrt{5})$
 - c. $(4 - \sqrt{2})(3 + \sqrt{8})$
 - d. $(10 - \sqrt{2})^2$
- 4) Rationalise the denominators for each of the following:
 - a. $\frac{3}{2\sqrt{5}}$
 - b. $\frac{4}{1 + \sqrt{5}}$
 - c. $\frac{5 + 2\sqrt{3}}{2 + \sqrt{3}}$

Teacher marked questions (hand into Mrs Beattie)

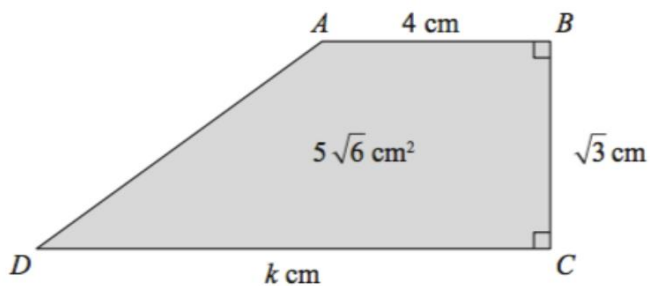
- 1) Write $(1 + 2\sqrt{5})(4 - \sqrt{5})$ in the form $a + b\sqrt{5}$ where a and b are integers.
- 2) A trapezium $ABCD$ has an area of $5\sqrt{6} \text{ cm}^2$.

$$AB = 4 \text{ cm}$$

$$BC = \sqrt{3} \text{ cm}$$

$$DC = k \text{ cm}$$

Calculate the value of k , giving your answer in the form $a\sqrt{2} - b$, where a and b are integers.



Representing and Interpreting Data

All questions in this section will be teacher marked questions (hand into Mr Moulder)

- 1) 20 students scored goals for the school hockey team last month.

The table gives information about the number of goals they scored.

Goals scored	Number of students	
1	9	
2	3	
3	5	
4	3	

- Write down the modal number of goals scored.
- Work out the range of the number of goals scored.
- Work out the mean number of goal scored.

- 2) Bob asked each of 40 friends how many minutes they took to get to work.

The table shows some information about his results.

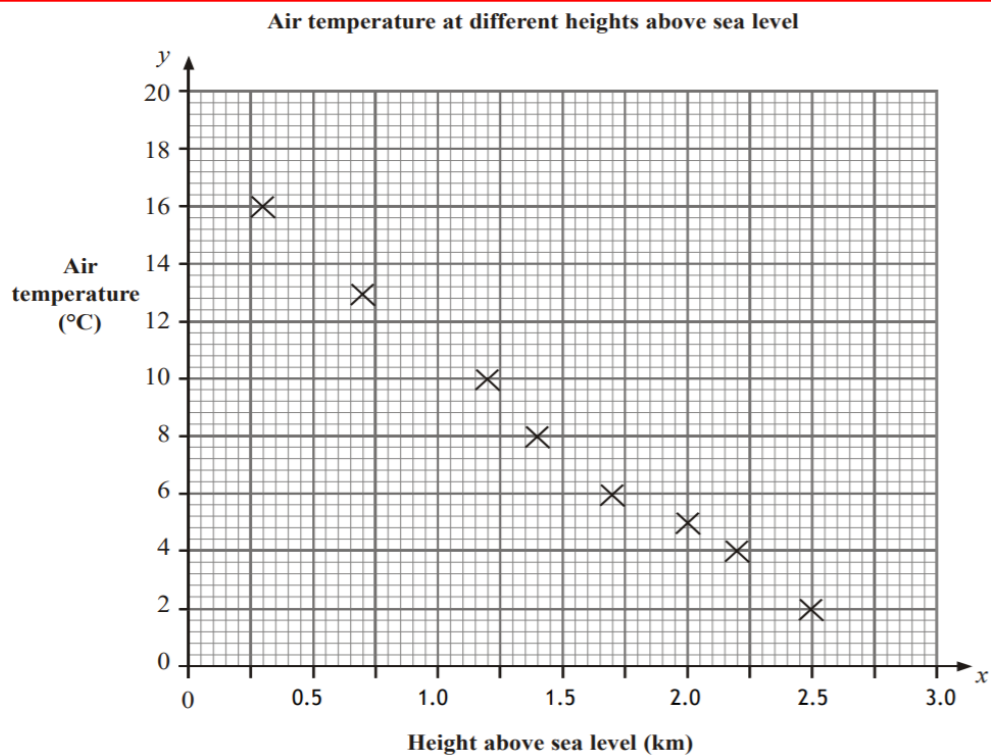
Time taken (m minutes)	Frequency
$0 < m \leq 10$	3
$10 < m \leq 20$	8
$20 < m \leq 30$	11
$30 < m \leq 40$	9
$40 < m \leq 50$	9

- Work out an estimate for the mean time taken.
- State the modal class interval.
- State the interval that contains the median.

- 3) On a particular day, a scientist recorded the air temperature at 8 different heights above sea level. The scatter diagram shows the air temperature, y °C, at each of these heights, x km, above sea level.

Use the scatter graph on the next page to answer the following questions:

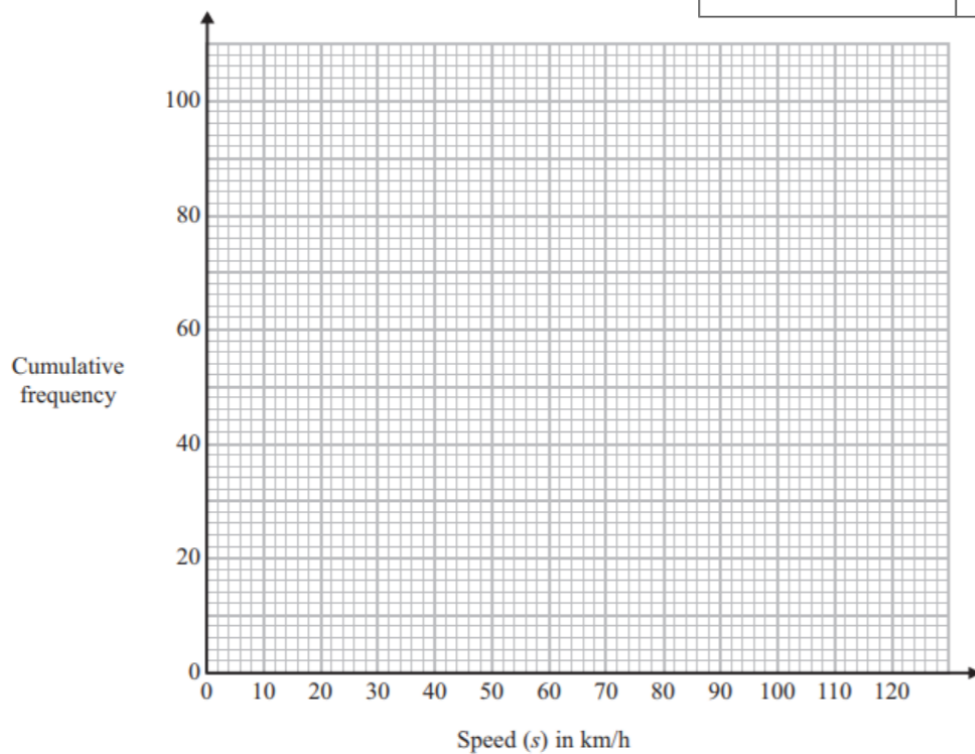
- Write down the air temperature recorded at a height of 2.5 km above sea level.
- Describe the correlation between the air temperature and the height above sea level.
- Find an estimate of the height above sea level when the air temperature is 5 °C.



4) The frequency table shows the speeds of 100 cars.

- On the grid, plot a cumulative frequency graph for this information.
- Find an estimate for the interquartile range.
- Find an estimate for the number of cars travelling over 90 km/h.

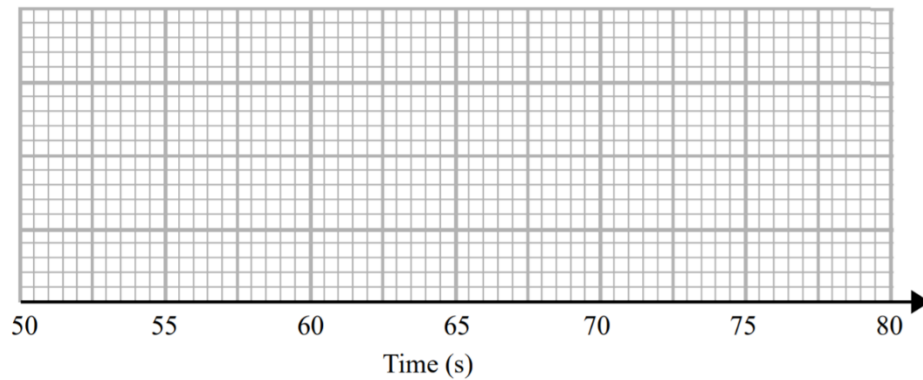
Speed (km/h)	Frequency
$0 < s \leq 20$	6
$20 < s \leq 40$	17
$40 < s \leq 60$	29
$60 < s \leq 80$	25
$80 < s \leq 100$	20
$100 < s \leq 120$	3



- 5) The times, in seconds, of 15 students running a race are recorded below.

52 54 54 55 58 58 59 60 60 61 61 64 67 70 75

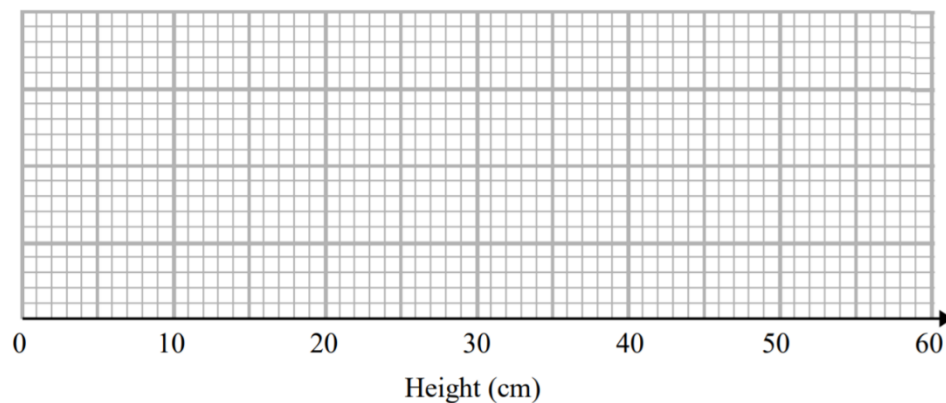
Draw a box plot for this information.



- 6) The heights, in cm, of some tomato plants in Maggie's garden are shown below.

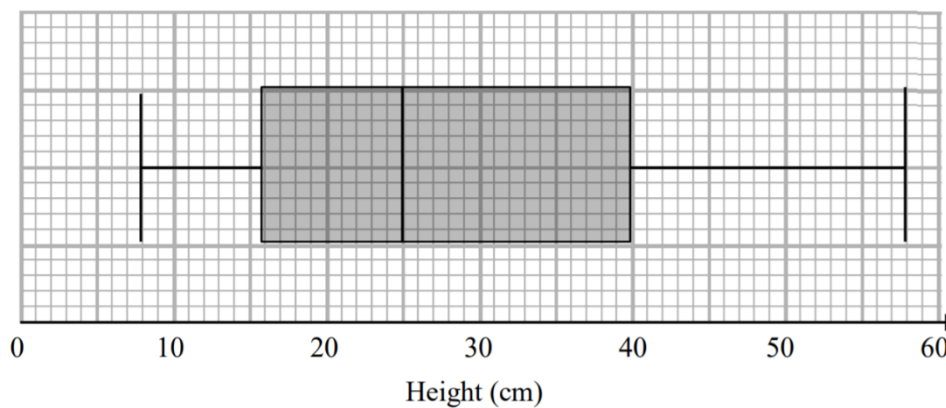
47 48 28 36 34 12 26 35 16 55 41

- a. Draw a box plot for this information.



There are also some tomato plants in Nigel's garden.

The box plot below shows the distribution of the heights of Nigel's tomato plants.



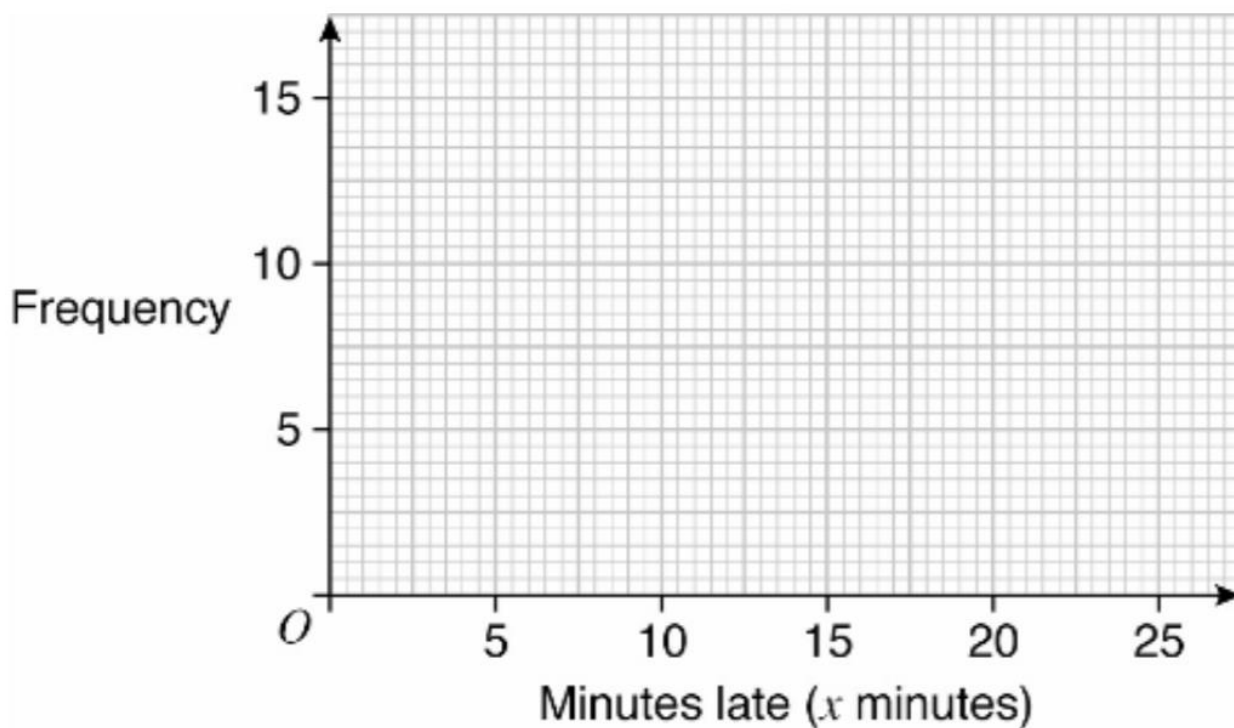
- b. Compare the distribution of the heights of Maggie's plants with the distribution of heights of Nigel's plants.

- 7) In one month, Janet travelled by bus 25 times and by train 25 times.

The grouped frequency table records the number of minutes (x minutes) late each of her buses and trains were.

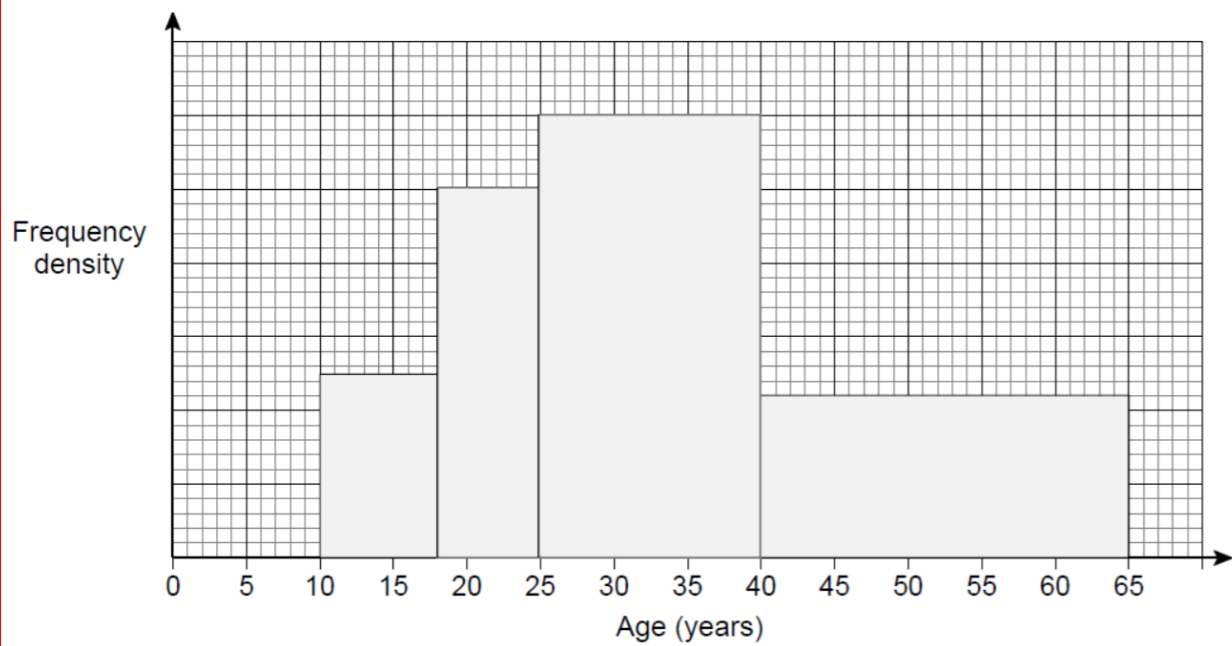
Minutes late	Bus	Train
$0 \leq x < 5$	5	9
$5 \leq x < 10$	15	6
$10 \leq x < 15$	4	6
$15 \leq x < 20$	1	2
$20 \leq x < 25$	0	3

- a. On the grid below, draw two frequency polygons to illustrate this data.



- b. Use your polygons to compare the lateness of buses and trains and comment on any differences that you observe.

8) The histogram shows the ages, in years, of members of a chess club.



There are 22 members with ages in the range $40 \leq \text{age} < 65$.

- Work out the number of members with ages in the range $25 \leq \text{age} < 40$.
- Work out the total number of members in the chess club.
- Calculate the percentage of members who are aged 55 or over.

Probability

- 1) There are 5 red marbles, 3 blue marbles and 2 green marbles in a bag.

Emily takes a marble from the bag at random, notes the colour and then puts the marble back in the bag.

She then takes another marble at random.

- Work out the probability that both marbles were blue.
- Work out the probability that both marbles were the same colour.
- Work out the probability that at least one of the marbles was green.

- 2) Here are seven tiles.



Henry takes a tile at random. He does not replace the tile.

Henry then takes a second tile at random.

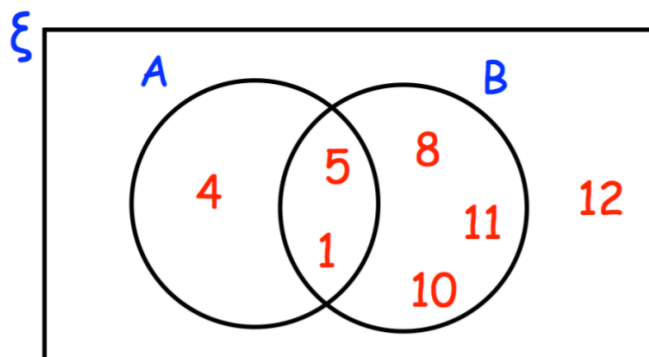
- Calculate the probability that both of the tiles Henry takes have the number 1 on them.
- Calculate the probability that the number on the second tile Henry takes is greater than the number on the first tile he takes.

- 3) Here is a Venn diagram.

A number is chosen at random.

Write down:

- $P(A)$
- $P(A \cap B)$
- $P(A \cap B')$
- $P(A' \cup B')$
- $P(B|A)$



Teacher marked questions (hand into Mr Moulder)

- 1) Carolyn has 20 biscuits in a tin.

She has 12 chocolate biscuits, 5 ginger biscuits and 3 oat biscuits.

Carolyn takes at random two biscuits from the tin.

Work out the probability that:

- a. the two biscuits were not the same type.
- b. at least one of the biscuits was a ginger biscuit.

- 2) Amy asked 50 people which drinks they liked from tea, coffee and milk.

All 50 people liked at least one of the drinks.

19 people like all three drinks.

16 people like tea and coffee but do not like milk.

21 people like coffee and milk.

24 people like tea and milk.

40 people like coffee.

1 person likes only milk.

Amy selects one person at random from the 50 people.

- a. Work out the probability that this person likes tea.
- b. Given that the person selected at random from the 50 people likes tea, find the probability that this person also likes exactly one other drink.