

71 Edexcel GCSE

Mathematics (Linear) – 1MA0

SURFACE AREA

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil



Instructions

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

Information

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Advice

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Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

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

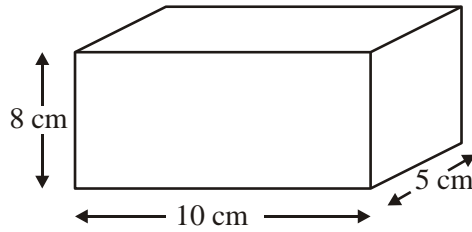


Diagram **NOT** accurately drawn

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 5 cm by 4 cm by 3 cm.

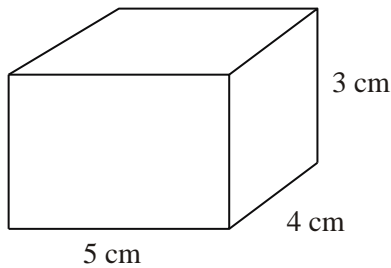


Diagram **NOT** accurately drawn

What is the total surface area of this cuboid?

State the units with your answer.

.....
(Total 4 marks)

3. Here is a cuboid.

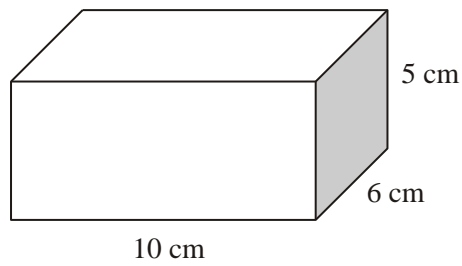


Diagram **NOT** accurately drawn

What is the total surface area of the cuboid?

State the units with your answer.

.....
(Total 4 marks)

4.

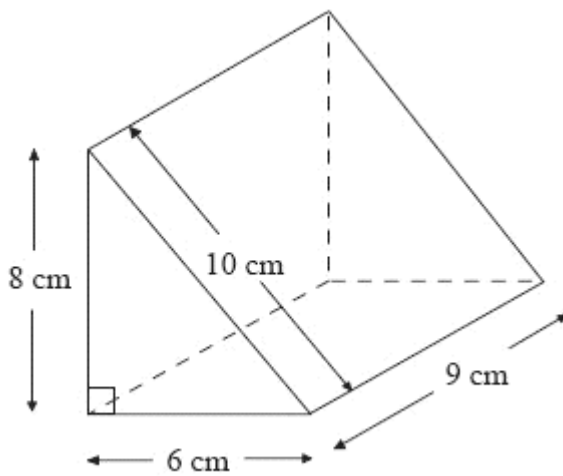


Diagram **NOT**
accurately drawn

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

.....
(Total 4 marks)

5.

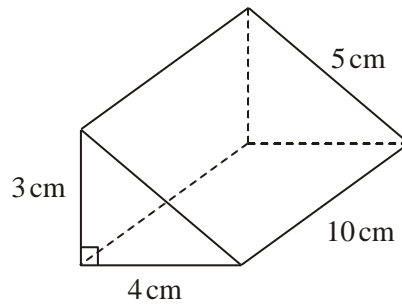


Diagram **NOT** accurately drawn

What is the total surface area of the triangular prism?

Work out the surface area of the triangular prism.

State the units with your answer.

.....
(Total 4 marks)

6.

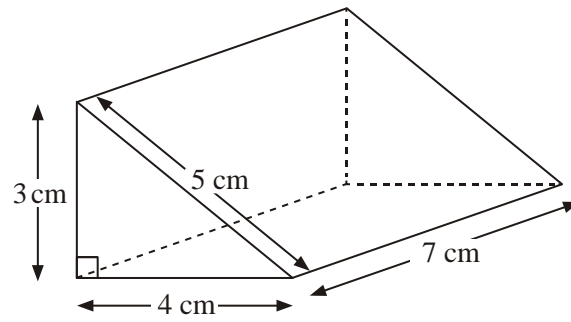


Diagram **NOT** accurately drawn

Work out the total surface area of the triangular prism.

..... cm^2
(Total 3 marks)

7.

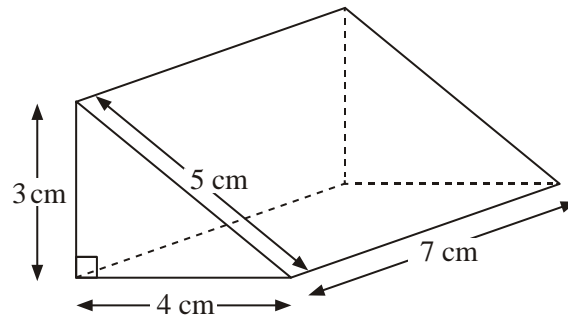


Diagram **NOT** accurately drawn

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

.....

(Total 4 marks)

8.

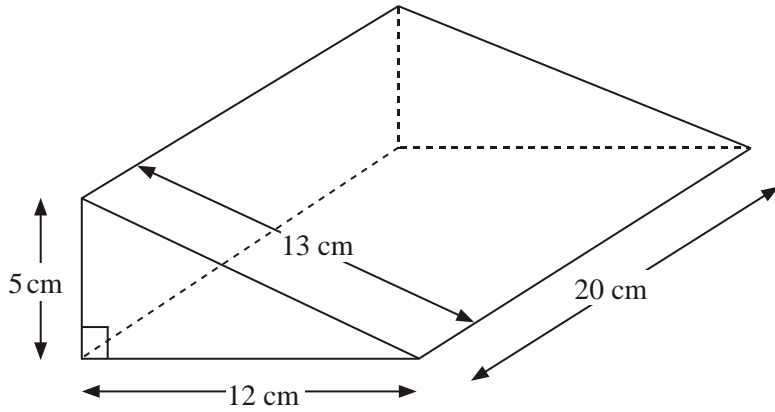


Diagram **NOT** accurately drawn

The diagram shows a right-angled triangular prism.

Work out the surface area of the triangular prism.

..... cm^2
(Total 3 marks)

9.

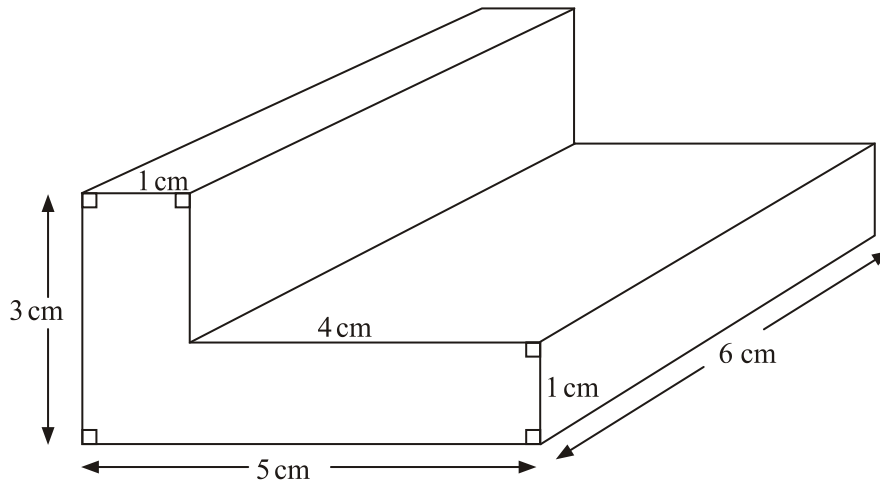


Diagram **NOT**
accurately drawn

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

.....
(Total 4 marks)

72 Edexcel GCSE

Mathematics (Linear) – 1MA0

VOLUME OF PRISM

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil



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Calculators may be used.

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Advice

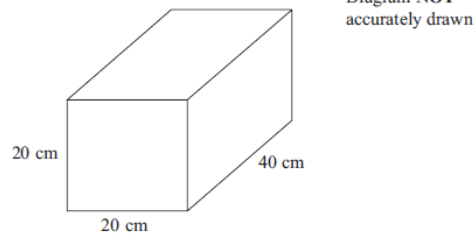
Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

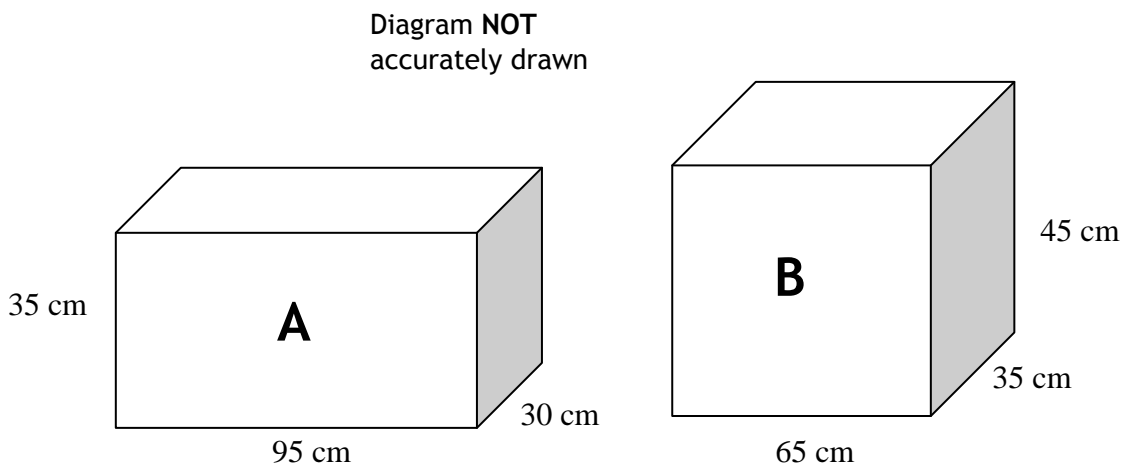
1. Here is a cuboid.



Work out the volume of the cuboid.

.....
(3 marks)

-
- *2. The diagram shows two fish tanks, each in the shape of a cuboid.



Finley fills both fish tanks with water.

Which fish tank holds the most water?
You must show all your calculations.

.....
(4 marks)

3. The diagram shows a prism.

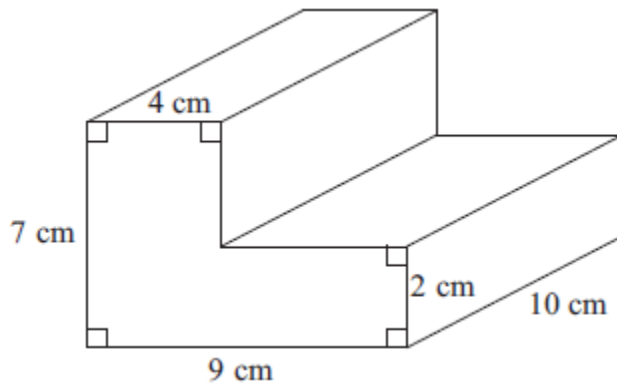


Diagram NOT
accurately drawn

Work out the volume of the prism.

.....cm³

(4 marks)

4. Here is a solid prism.

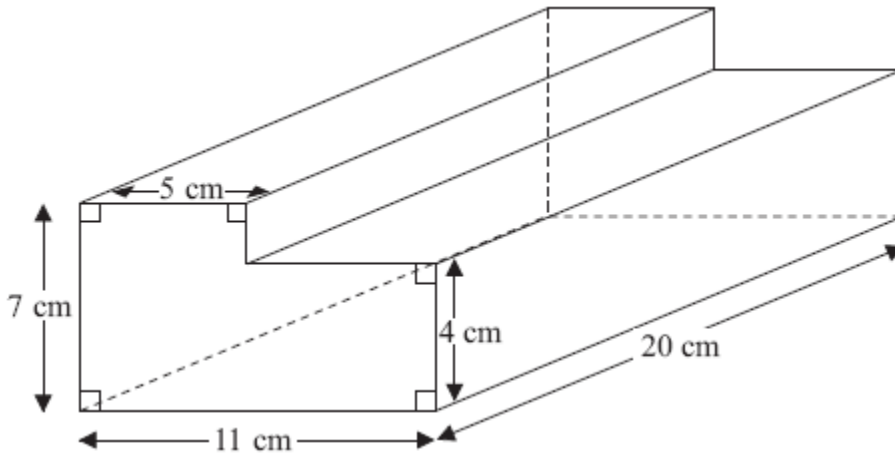


Diagram **NOT** accurately drawn

Work out the volume of the prism.

..... cm^3

(4 marks)

5.

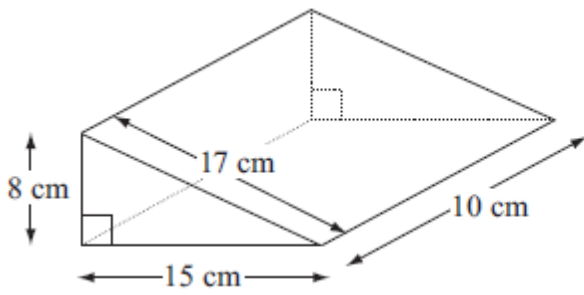


Diagram NOT
accurately drawn

Work out the volume of the triangular prism.

.....
(4 marks)

6.

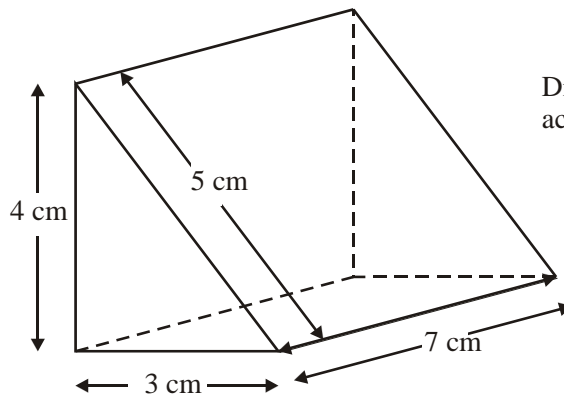


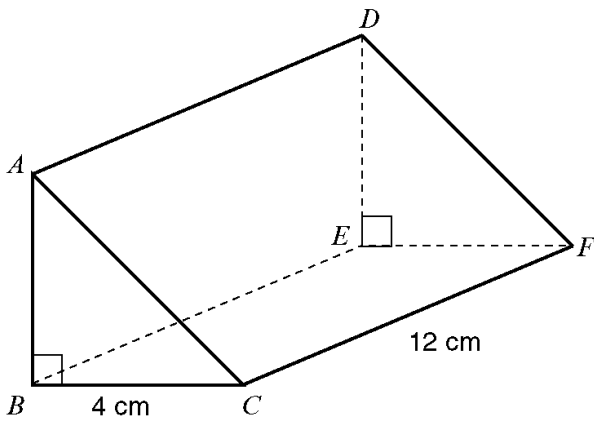
Diagram NOT
accurately drawn

Calculate the volume of the triangular prism.

.....
(4 marks)

7. The diagram shows a triangular prism.

Diagram **NOT**
accurately drawn



$BC = 4$ cm, $CF = 12$ cm and angle $ABC = 90^\circ$.

The volume of the triangular prism is 84 cm³.

Work out the length of the side AB of the prism.

.....
(4 marks)

8. The diagram shows a triangular prism.

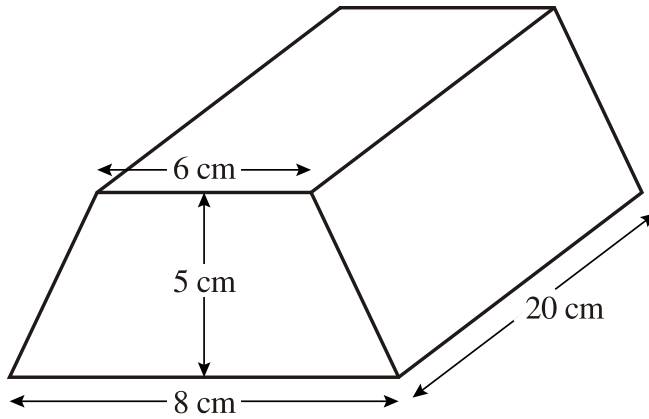


Diagram **NOT** accurately drawn.

The cross-section of the prism is a trapezium.
The lengths of the parallel sides of the trapezium are 8 cm and 6 cm.
The distance between the parallel sides of the trapezium is 5 cm.
The length of the prism is 20 cm.

Work out the volume of the prism.

.....
(4 marks)

9.

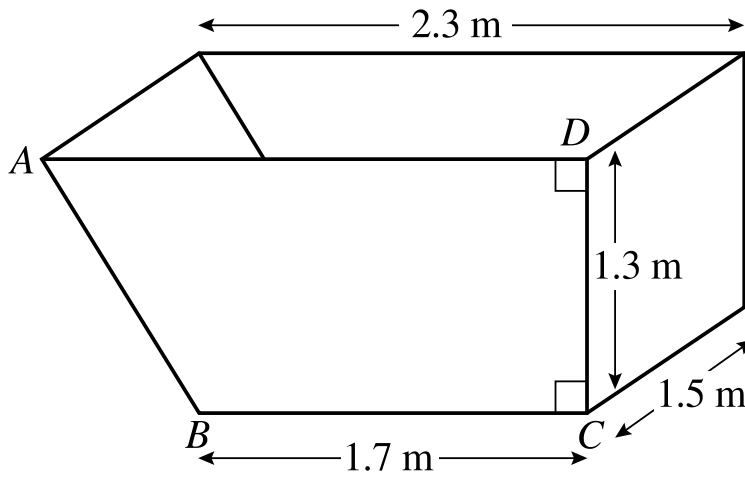


Diagram **NOT**
accurately
drawn

A skip is in the shape of a prism with cross-section $ABCD$.
 $AD = 2.3$ m, $DC = 1.3$ m and $BC = 1.7$ m.
The width of the skip is 1.5 m.

(a) Calculate the area of the shape $ABCD$.

.....
(2 marks)

b) Calculate the volume of the skip.

.....
(3 marks)

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Mathematics (Linear) – 1MA0

VOLUME AND SURFACE AREA OF CYLINDER

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.

Tracing paper may be used.

Items included with question papers

Nil



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1.

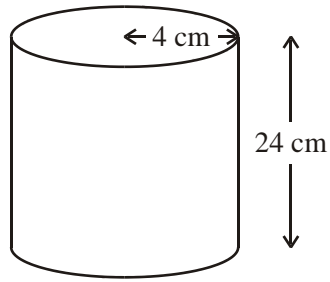


Diagram **NOT** accurately drawn

A cylinder has a height of 24 cm and a radius of 4 cm.
Work out the volume of the cylinder.
Give your answer correct to 3 significant figures.

..... cm³
(Total 2 marks)

2. A can of drink is in the shape of a cylinder.
The can has a radius of 4 cm and a height of 15 cm.

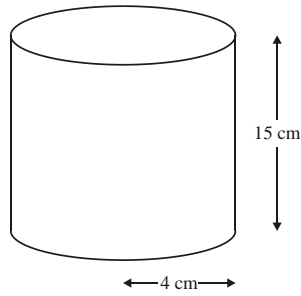


Diagram **NOT**
accurately drawn

Calculate the volume of the cylinder.
Give your answer correct to 3 significant figures.

.....
(Total 3 marks)

- 3.

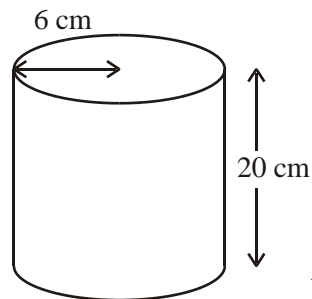


Diagram **NOT** accurately drawn

A solid cylinder has a radius of 6 cm and a height of 20 cm.

Calculate the volume of the cylinder.

Give your answer correct to 3 significant figures.

..... cm^3
(Total 2 marks)

4.

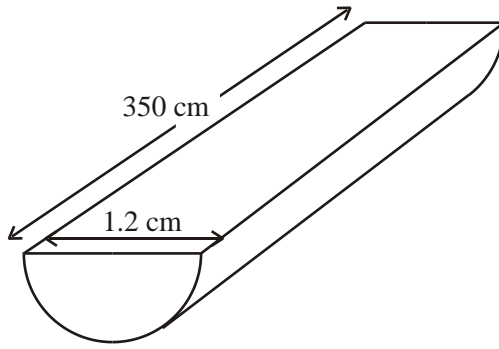


Diagram **NOT** accurately drawn

The diagram shows a piece of wood.

The piece of wood is a prism of length 350 cm.

The cross-section of the prism is a semi-circle with diameter 1.2 cm.

Calculate the volume of the piece of wood.

Give your answer correct to 3 significant figures.

..... cm^3
(Total 4 marks)

5.

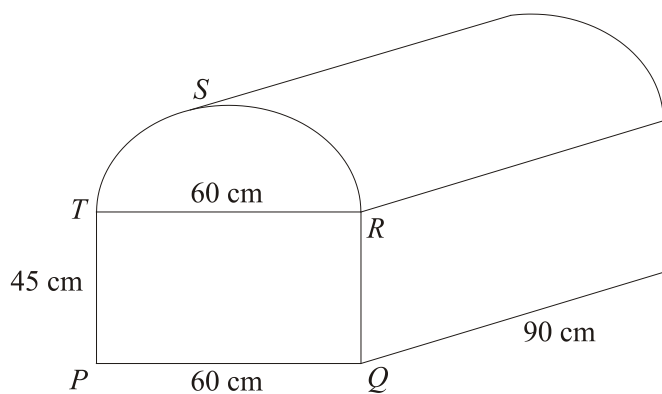


Diagram **NOT** accurately drawn

The diagram shows a prism of length 90 cm .

The cross section, $PQRST$, of the prism is a semi-circle above a rectangle.

$PQRT$ is a rectangle.

RST is a semi-circle with diameter RT .

$PQ = RT = 60\text{ cm}$.

$PT = QR = 45\text{ cm}$.

Calculate the volume of the prism.

Give your answer correct to 3 significant figures.

State the units of your answer.

.....

(Total 5 marks)

6.

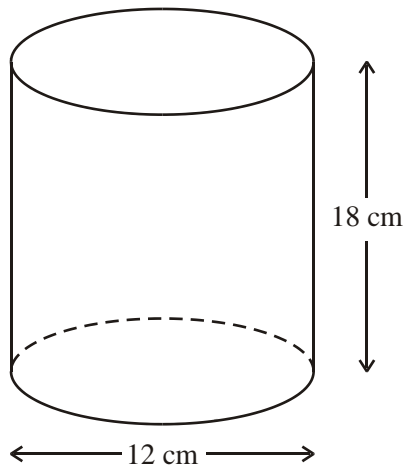


Diagram **NOT** accurately drawn

The diagram shows a solid cylinder.

The cylinder has a diameter of 12 cm and a height of 18 cm.

Calculate the **total** surface area of the cylinder.

Give your answer correct to 3 significant figures.

..... cm^2
(Total 4 marks)

7.

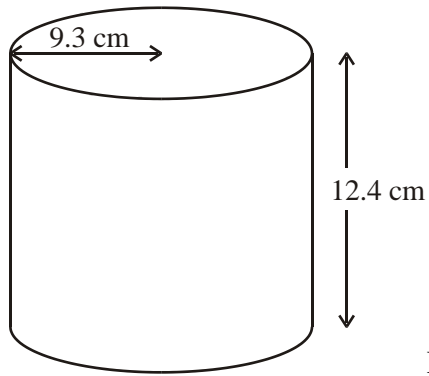


Diagram **NOT** accurately drawn

The diagram shows a solid cylinder.
The radius of the cylinder is 9.3 cm.
Its height is 12.4 cm.

Calculate the **total** surface area of the cylinder.
Give your answer correct to 3 significant figures.

..... cm²
(Total 4 marks)
603

8.

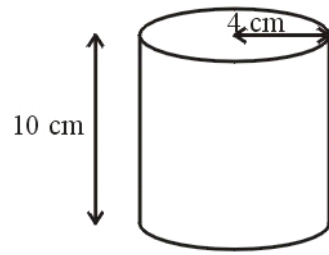


Diagram **NOT** accurately drawn

The diagram shows a cylinder with a height of 10 cm and a radius of 4 cm.

- (a) Calculate the volume of the cylinder.
Give your answer correct to 3 significant figures.

.....

(3)

The cylinder is solid.

- (b) Calculate the **total** surface area of the cylinder.
Give your answer correct to 3 significant figures.

.....

(3)

(Total 6 marks)

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Mathematics (Linear) – 1MA0

SIMILAR SHAPES

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil



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Advice

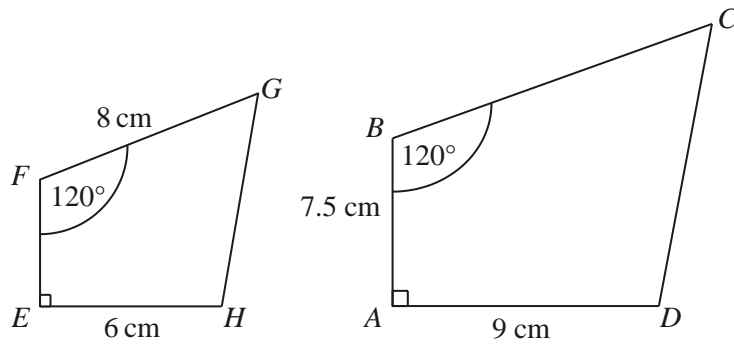
Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1. Shapes $ABCD$ and $EFGH$ are mathematically similar.



Diagrams **NOT** accurately drawn

- (a) Calculate the length of BC .

..... cm

(2)

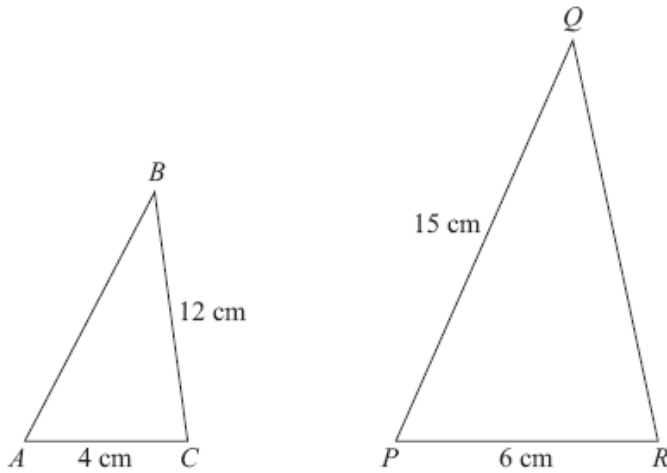
- (b) Calculate the length of EF .

..... cm

(2)

(Total 4 marks)

2.



Diagrams **NOT** accurately drawn

Triangles ABC and PQR are mathematically similar.

Angle $A =$ angle P .

Angle $B =$ angle Q .

Angle $C =$ angle R .

$AC = 4$ cm.

$BC = 12$ cm.

$PR = 6$ cm.

$PQ = 15$ cm.

(a) Work out the length of QR .

.....cm

(2)

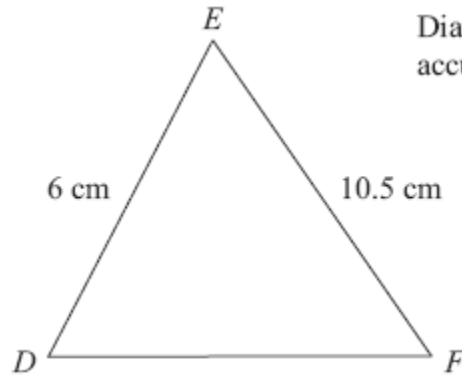
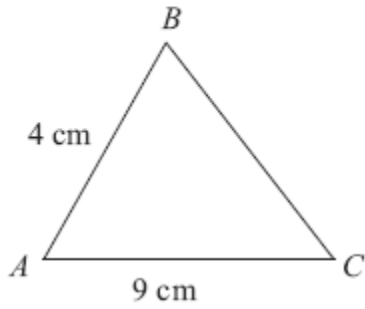
(b) Work out the length of AB .

.....cm

(2)

(Total 4 marks)

3.



Diagrams **NOT** accurately drawn

Triangles ABC and DEF are similar.

$AB = 4\text{ cm}$.

$AC = 9\text{ cm}$.

$DE = 6\text{ cm}$.

$EF = 10.5\text{ cm}$.

(a) Work out the length of DF .

(2)

..... cm

(b) Work out the length of BC .

(2)

..... cm

(Total 4 marks)

4. The diagram shows two similar triangles.

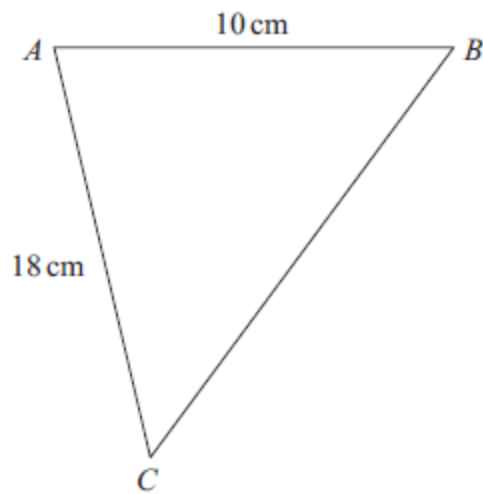
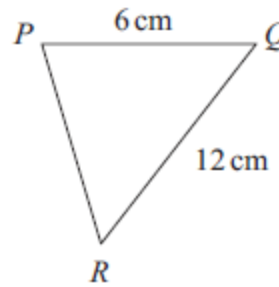


Diagram NOT accurately drawn



In triangle ABC , $AB = 10$ cm and $AC = 18$ cm.
 In triangle PQR , $PQ = 6$ cm and $QR = 12$ cm.

Angle $ABC =$ angle PQR .
 Angle $CAB =$ angle RPQ .

- (a) Calculate the length of BC .

..... cm
 (2)

- (b) Calculate the length of PR .

..... cm
 (2)

(Total 4 marks)

5.

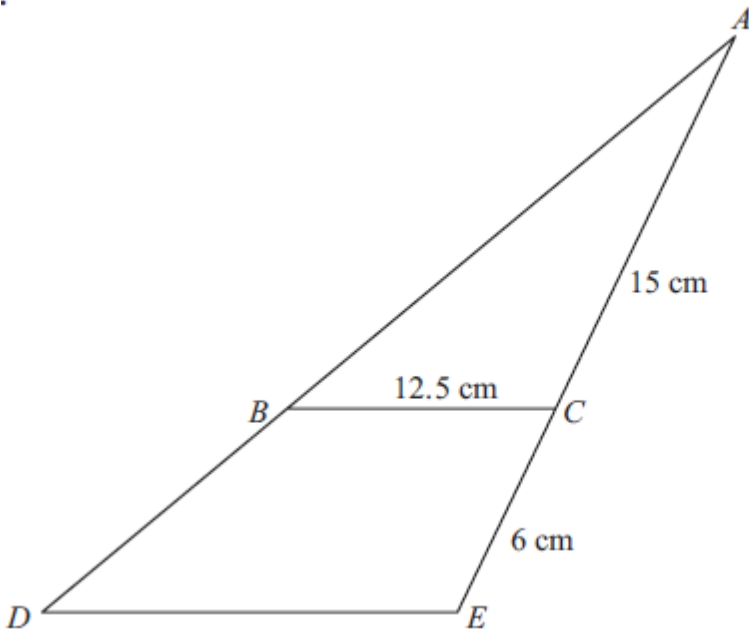


Diagram NOT
accurately drawn

Triangle ABC is similar to triangle ADE .

$AC = 15$ cm.

$CE = 6$ cm.

$BC = 12.5$ cm.

Work out the length of DE .

..... cm

(Total 3 marks)

*6.



Pictures **NOT**
accurately drawn

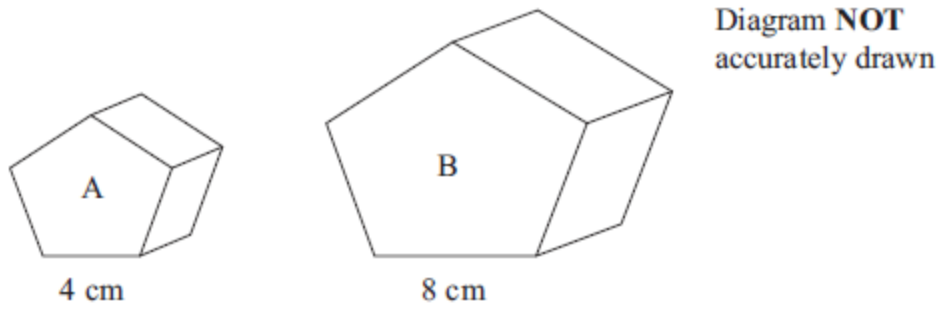
A 20 Euro note is a rectangle 133 mm long and 72 mm wide.

A 500 Euro Note is a rectangle 165 mm long and 82 mm wide.

Show that the two rectangles are not mathematically similar.

(Total 3 marks)

7. The diagram shows two similar solids, A and B.



Solid A has a volume of 80 cm^3 .

(a) Work out the volume of solid B.

..... cm^3
(2)

Solid B has a total surface area of 160 cm^2 .

(b) Work out the total surface area of solid A.

..... cm^2
(2)

(Total 4 marks)

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Mathematics (Linear) – 1MA0

COMPOUND MEASURES

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil



Instructions

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1. Adam cycled 24 km in 2 hours.

Work out his average speed.

..... km/h
(Total 2 marks)

2. Stuart drives 180 km in 2 hours 15 minutes.

Work out Stuart's average speed.

..... km/h
(Total 3 marks)

3. Joe travelled 60 miles in 1 hour 30 minutes.

Work out Joe's average speed.

Give your answer in miles per hour.

..... miles per hour
(Total 2 marks)

4. The distance from Liverpool to Prague is 1200 km.
A flight from Liverpool to Prague lasts 4 hours.

Work out the average speed of the aeroplane.

..... km/h
(Total 2 marks)

5. Mia drove a distance of 343 km.
She took 3 hours 30 minutes.

Work out her average speed.
Give your answer in km/h.

..... km/h
(Total 3 marks)

6. The distance from London to New York is 3456 miles.
A plane takes 8 hours to fly from London to New York.

Work out the average speed of the plane.

..... miles per hour
(Total 2 marks)

7. A car travels for 3 hours.
Its average speed is 75 km/h.

Work out the total distance the car travels.

..... km
(Total 2 marks)

8. Daniel leaves his house at 07 00.
He drives 87 miles to work.
He drives at an average speed of 36 miles per hour.
At what time does Daniel arrive at work?

.....
(Total 3 marks)

9. Fred runs 200 metres in 21.2 seconds.

- (a) Work out Fred's average speed.
Write down all the figures on your calculator display.

..... metres per second

(2)

- (b) Round off your answer to part (a) to an appropriate degree of accuracy.

..... metres per second

(1)

(Total 3 marks)

10. A plane flies 1400 kilometres in 2 hours 20 minutes.

Calculate the average speed, in km/h, of the plane.

..... km/h

(Total 3 marks)

11. John travelled 30 km in 1.5 hours.
Kamala travelled 42 km in 2 hours.

Who had the greater average speed?
You must show your working.

.....
(Total 3 marks)

12. The mass of 5 m^3 of copper is 44 800 kg.

(a) Work out the density of copper.

..... kg/m^3

(2)

The density of zinc is 7130 kg/m^3 .

(b) Work out the mass of 5 m^3 of zinc.

..... kg

(2)

(Total 4 marks)

13. A silver chain has a volume of 5 cm^3 .

The density of silver is $10.5 \text{ grams per cm}^3$.

Work out the mass of the silver chain.

.....grams

(Total 2 marks)

14. The density of concrete is 2.3 grams per cm^3 .

(a) Work out the mass of a piece of concrete with a volume of 20 cm^3 .

..... grams (2)

480 grams of a cheese has a volume of 400 cm^3 .

(b) Work out the density of the cheese.

..... grams per cm^3 (2)
(Total 4 marks)

15. The volume of a gold bar is 100 cm^3 .

The density of gold is 19.3 grams per cm^3 .

Work out the mass of the gold bar.

..... grams (Total 2 marks)

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Mathematics (Linear) – 1MA0

LOCI & CONSTRUCTIONS

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
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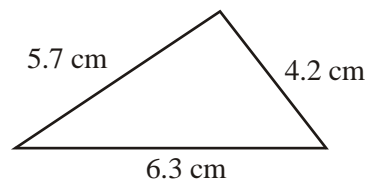
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1. Here is a sketch of a triangle.



In the space below, use ruler and compasses to **construct** this triangle accurately. You must show all construction lines.

(3 marks)

2.

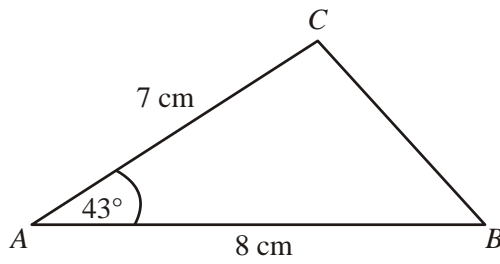


Diagram **NOT**
accurately drawn

ABC is a triangle.

$AB = 8$ cm.

$AC = 1$ cm.

Angle $A = 43^\circ$.

In the space below, make an accurate drawing of triangle ABC .

(3 marks)

3. The diagram shows a sketch of triangle ABC .

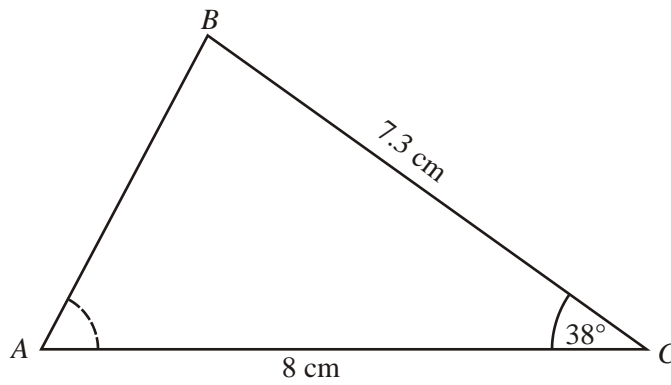


Diagram **NOT** accurately drawn

$BC = 7.3$ cm.
 $AC = 8$ cm.
Angle $C = 38^\circ$.

(a) Make an accurate drawing of triangle ABC .

(3)

(b) Measure the size of angle A on your diagram.

.....°

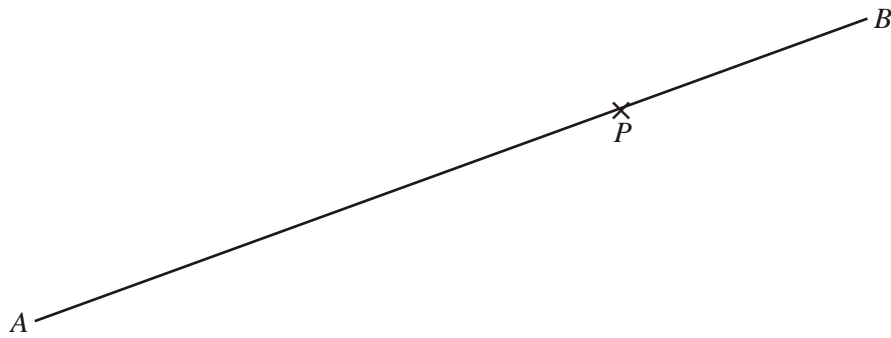
(1)

(4 marks)

4. In the space below, use ruler and compasses to **construct** an equilateral triangle with sides of length 6 centimetres.
You must show all your construction lines.

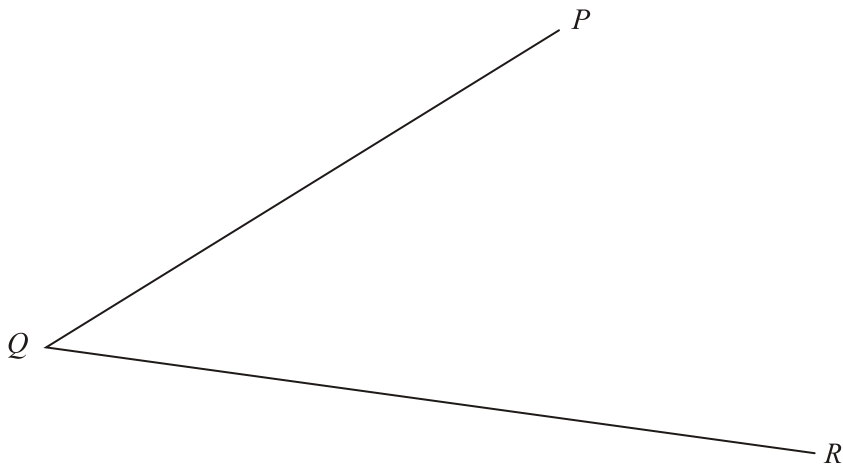
(3 marks)

5. Use the ruler and compasses to **construct** the perpendicular to the line segment AB that passes through the point P .
You must show all construction lines.



(3 marks)

- 6.



Use ruler and compasses to **construct** the bisector of angle PQR .
You must show all your construction lines.

(3 marks)

7.

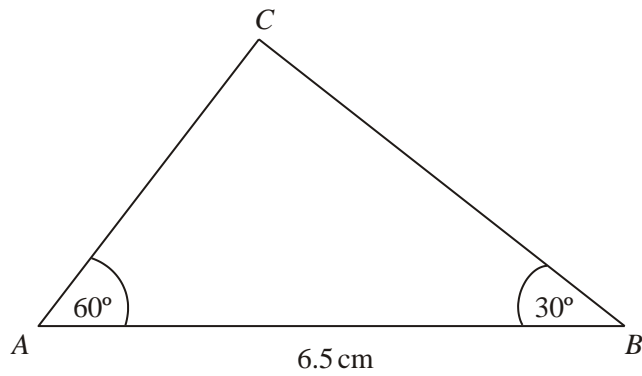


Diagram **NOT** accurately drawn

(a) Make an accurate drawing of triangle *ABC*.

(3)

(b) Measure the size of the angle at *C* in your triangle.

.....°

(1)

(4 marks)

8.

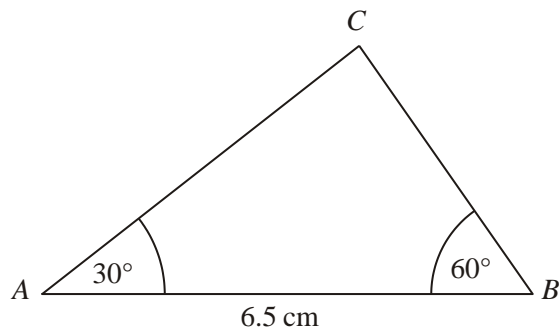


Diagram NOT accurately drawn

- (a) Make an accurate drawing of this triangle.

(2)

- (b) Measure the length of the line AC on your drawing.
You must state the units.

.....

(2)

The size of the angle in the triangle at C is 90°.

- (c) Write down the mathematical name for this type of angle.

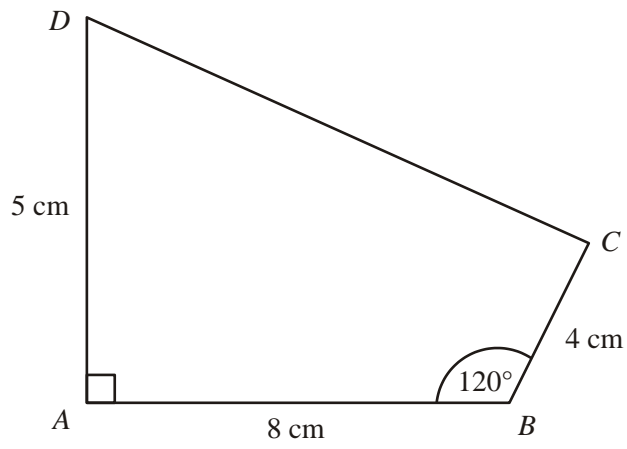
.....

(1)

(5 marks)

9.

Diagram **NOT**
accurately drawn

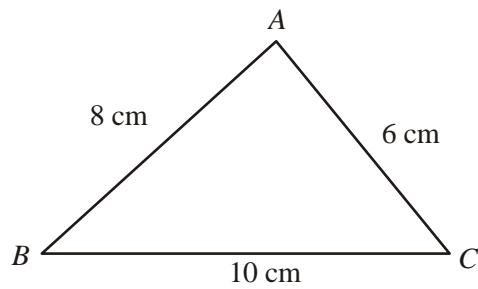


Make an accurate drawing of the quadrilateral $ABCD$ in the space below.

(4 marks)

10.

Diagram **NOT** accurately drawn



ABC is a triangle.

$AB = 8$ cm.

$AC = 6$ cm.

$BC = 10$ cm.

Use ruler and compasses to construct an accurate drawing of triangle ABC .

You must show all your construction lines.

(3 marks)

11. Here is a sketch of a rhombus.

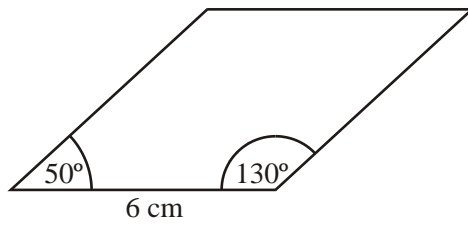


Diagram **NOT** accurately drawn

The rhombus has a side of length 6 cm.

One angle of the rhombus is 50° .

Another angle of the rhombus is 130° .

Use a ruler and a protractor to make an accurate drawing of the rhombus.

(4 marks)

77 Edexcel GCSE Mathematics (Linear) – 1MA0

BEARINGS

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil



Instructions

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

Information

The marks for each question are shown in brackets – use this as a guide as to how much time to spend on **each** question.

Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

Advice

Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1.

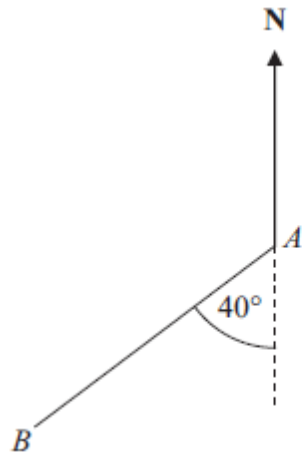


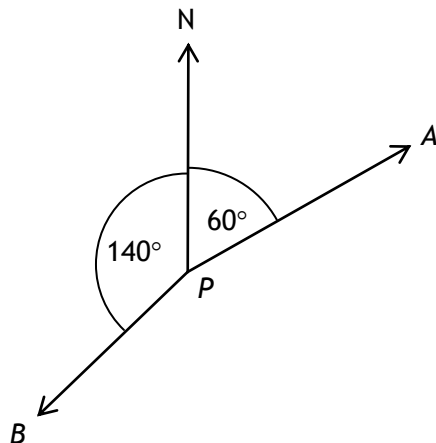
Diagram **NOT**
accurately drawn

Work out the bearing of *B* from *A*.

.....°

(2 marks)

2.



(a) Write down the bearing of *A* from *P*.

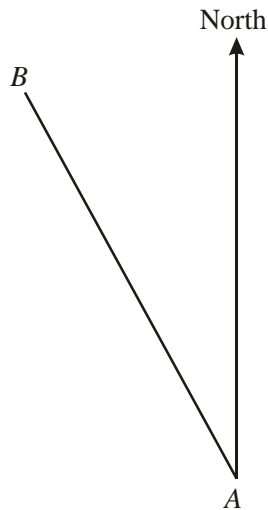
.....°

(b) Work out the bearing of *B* from *P*.

.....°

(3 marks)

3.



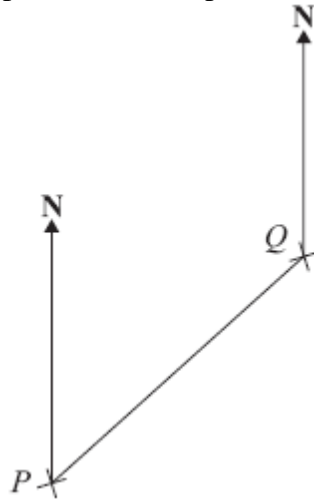
(a) Measure and write down the bearing of B from A .

.....^o
(1)

(b) On the diagram, draw a line on a bearing of 107° from A .

(1)
(2 marks)

4. The diagram shows the position of two ports P and Q on a map.



(a) Measure the bearing of Q from P .

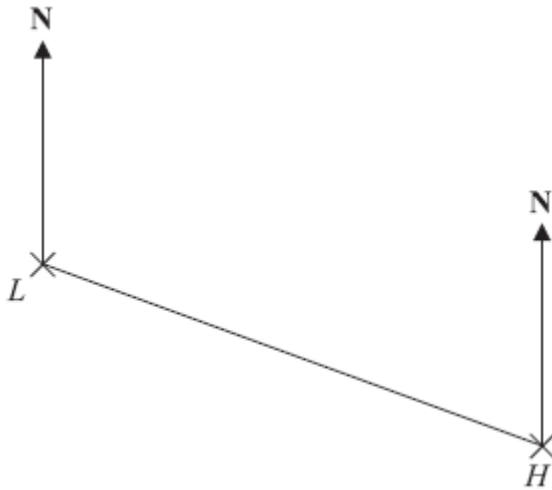
.....^o
(1)

A rock R is on a bearing of 150° from Q .
On the map R is 6 cm from Q .

(b) Mark the position of R with a cross (\times) and label it R .

(2)
(3 marks)

5. The diagram shows the position of a lighthouse L and a harbour H .



The scale of the diagram is 1 cm represents 5 km.

(a) Work out the real distance between L and H .

..... km
(1)

(b) Measure the bearing of H from L .

.....°
(1)

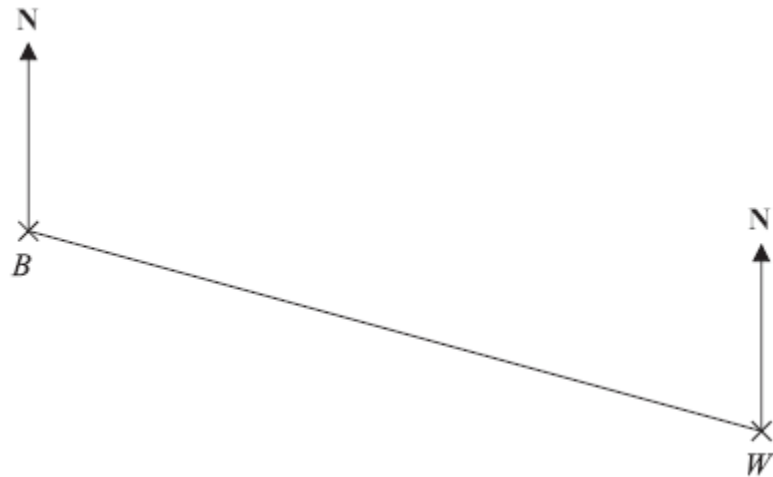
A boat B is 20 km from H on a bearing of 040°

(c) On the diagram, mark the position of boat B with a cross (\times).

Label it B .

(2)
(4 marks)

6. The diagram shows the positions of two villages, Beckhampton (*B*) and West Kennett (*W*).



Scale: 4 cm represents 1 km.

(a) Work out the real distance, in km, of Beckhampton from West Kennett.

..... km
(2)

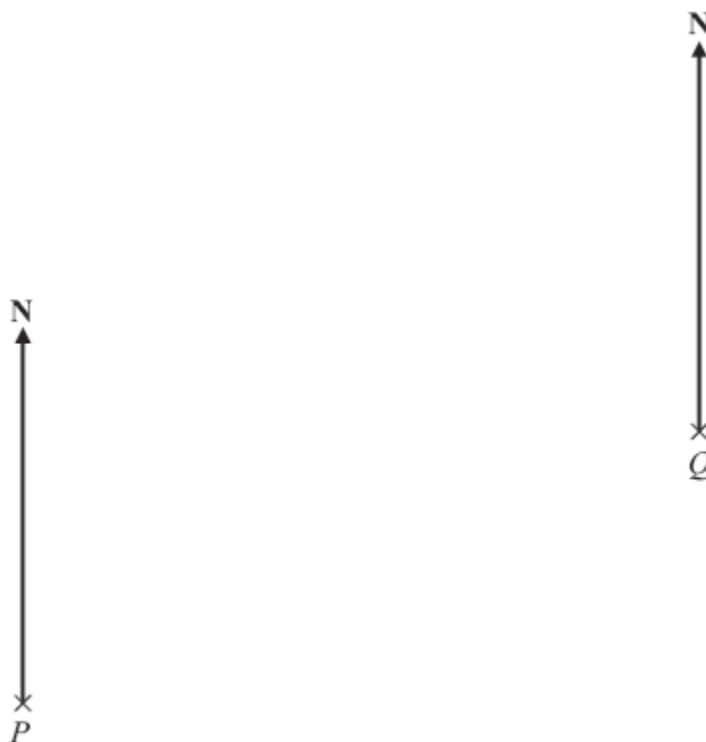
The village, Avebury (*A*), is on a bearing of 038° from Beckhampton.

On the diagram, *A* is 6 cm from *B*.

(b) On the diagram, mark *A* with a cross (\times).
Label the cross *A*.

(2)
(4 marks)

7. The diagram shows the position of two boats, P and Q .

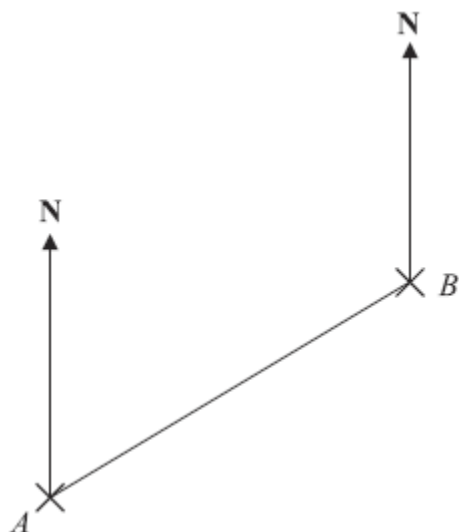


The bearing of a boat R from boat P is 060°
The bearing of boat R from boat Q is 310°

In the space above, draw an accurate diagram to show the position of boat R .
Mark the position of boat R with a cross (\times). Label it R .

(3 marks)

8. The diagram shows the positions of two telephone masts, A and B , on a map.



(a) Measure the bearing of B from A .

.....^o
(1)

Another mast C is on a bearing of 160° from B .

On the map, C is 4 cm from B .

(b) Mark the position of C with a cross (\times) and label it C .

(2)
(3 marks)

9. The bearing of a ship from a lighthouse is 050°

Work out the bearing of the lighthouse from the ship.

.....^o

(2 marks)

78 Edexcel GCSE Mathematics (Linear) – 1MA0

PROBABILITY AND RELATIVE FREQUENCY

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.

Tracing paper may be used.

Items included with question papers

Nil



Instructions

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

Information

The marks for each question are shown in brackets – use this as a guide as to how much time to spend on **each** question.

Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

Advice

Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1. The probability that a biased dice will land on a five is 0.3

Megan is going to roll the dice 400 times.

Work out an estimate for the number of times the dice will land on a five.

.....

(2 marks)

2. Jack sows 300 wildflower seeds.
The probability of a seed flowering is 0.7

Work out an estimate for the number of these seeds that will flower.

.....

(2 marks)

3. Angel Ltd manufacture components for washing machines. The probability that a component will be made within a tolerance of one tenth of a millimetre is 0.995.

Angel Ltd. manufacture 10 000 components each day.

Work out an estimate for the number of components that will not be within the tolerance of one tenth of a millimetre each day.

.....

(2 marks)

4. Four teams, City, Rovers, Town and United play a competition to win a cup. Only one team can win the cup.

The table below shows the probabilities of City or Rovers or Town winning the cup.

City	Rovers	Town	United
0.38	0.27	0.15	x

Work out the value of x .

.....
(2 marks)

5. Mia spins a spinner.
The spinner can land on red or green or blue or pink.

The table shows each of the probabilities that the spinner will land on red or green or blue.

Colour	Red	Green	Blue	Pink
Probability	0.4	0.1	0.2	

Work out the probability that the spinner will land on pink.

.....
(2 marks)

6. A bag contains some sweets.
The flavours of the sweets are either strawberry or chocolate or mint or orange.
Sarah is going to take one sweet at random from the bag.

The table shows the probability that Sarah will take a strawberry sweet or a mint sweet or an orange sweet.

Flavour	Strawberry	Chocolate	Mint	Orange
Probability	0.32		0.17	0.2

Work out the probability that Sarah will take a chocolate sweet.

.....
(2 marks)

7. A bag contains only red, green and blue counters.

The table shows the probability that a counter chosen at random from the bag will be red or will be green.

Colour	Red	Green	Blue
Probability	0.5	0.3	

Mary takes a counter at random from the bag.

(a) Work out the probability that Mary takes a blue counter.

.....

(2)

The bag contains 50 counters.

(b) Work out how many green counters there are in the bag.

.....

(2)

(4 marks)

8. A bag contains counters which are blue or red or green or yellow. Mark takes a counter at random from the bag.

The table shows the probabilities he takes a blue counter or a red counter or a yellow counter.

Colour	Blue	red	green	yellow
Probability	0.3	0.2		0.1

(a) Work out the probability that Mark takes a green counter.

.....

(2)

Mark puts the counter back into the bag.

Laura takes a counter at random from the bag. She looks at its colour then puts the counter back into the bag. She does this 50 times.

(b) Work out an estimate for the number of times Laura takes a red counter.

.....

(2)

(4 marks)

9. Marco has a 4-sided spinner.
The sides of the spinner are numbered 1, 2, 3 and 4
The spinner is biased.



The table shows the probability that the spinner will land on each of the numbers 1, 2 and 3

Number	1	2	3	4
Probability	0.20	0.35	0.20	

- (a) Work out the probability that the spinner will land on the number 4

.....

(2)

Marco spins the spinner 100 times.

- (b) Work out an estimate for the number of times the spinner will land on the number 2

.....

(2)

(4 marks)

10. A box contains bricks which are orange or blue or brown or yellow.
Duncan is going to choose one brick at random from the box.

The table shows each of the probabilities that Duncan will choose an orange brick or a brown brick or a yellow brick.

Colour	Orange	Blue	Brown	Yellow
Probability	0.35		0.24	0.19

Work out the probability that Duncan will choose a blue brick.

.....

(2 marks)

11. Riki has a packet of flower seeds.

The table shows each of the probabilities that a seed taken at random will grow into a flower that is pink or red or blue or yellow.

Colour	pink	red	blue	yellow	white
Probability	0.15	0.25	0.20	0.16	

(a) Work out the probability that a seed taken at random will grow into a white flower.

.....
(2)

There are 300 seeds in the packet.

All of the seeds grow into flowers.

(b) Work out an estimate for the number of red flowers.

.....
(2)

(4 marks)

12. There are only red counters, blue counters, white counters and black counters in a bag.

The table shows the probability that a counter taken at random from the bag will be red or blue.

Colour	red	blue	white	black
Probability	0.2	0.5		

The number of white counters in the bag is the same as the number of black counters in the bag.

Tania takes at random a counter from the bag.

(a) Work out the probability that Tania takes a white counter.

.....
(2)

There are 240 counters in the bag.

(b) Work out the number of red counters in the bag.

.....
(2)

(4 marks)

13. A bag contains some balls which are red or blue or green or black. Yvonne is going to take one ball at random from the bag.

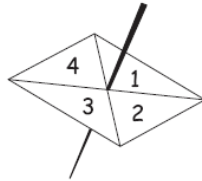
The table shows each of the probabilities that Yvonne will take a red ball or a blue ball or a black ball.

Colour	Red	Blue	Green	Black
Probability	0.3	0.17		0.24

Work out the probability that Yvonne will take a green ball.

.....
(2 marks)

14. Here is a four-sided spinner. **The spinner is biased.**



The table shows the probabilities that the spinner will land on 1 or on 3

Number	1	2	3	4
Probability	0.2		0.1	

The probability that the spinner will land on 2 is the same as the probability that the spinner will land on 4

- (a) Work out the probability that the spinner will land on 4

.....
(3)

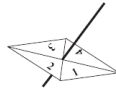
Shunya is going to spin the spinner 200 times.

- (b) Work out an estimate for the number of times the spinner will land on 3

.....
(2)

(5 marks)

15. Here is a 4-sided spinner.



The sides of the spinner are labelled 1, 2, 3 and 4.

The spinner is biased.

The probability that the spinner will land on each of the numbers 2 and 3 is given in the table.

The probability that the spinner will land on 1 is **equal** to the probability that it will land on 4.

Number	1	2	3	4
Probability	x	0.3	0.2	x

(a) Work out the value of x . $x = \dots\dots\dots$

(2)

Sarah is going to spin the spinner 200 times.

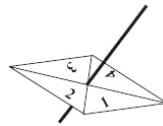
(b) Work out an estimate for the number of times it will land on 2

$\dots\dots\dots$

(2)

(4 marks)

16. Here is a 4-sided spinner.



The sides of the spinner are labelled 1, 2, 3 and 4.

The spinner is biased.

The probability that the spinner will land on each of the numbers 2 and 3 is given in the table.

The probability that the spinner will land on 1 is **equal** to the probability that it will land on 4.

Number	1	2	3	4
Probability	x	0.46	0.28	x

Sarah is going to spin the spinner 500 times.

Work out an estimate for the number of times it will land on 4

$\dots\dots\dots$

(5 marks)

79 Edexcel GCSE

Mathematics (Linear) – 1MA0

FREQUENCY TABLES

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil



Instructions

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

Information

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Advice

Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1. Amanda collected 20 leaves and wrote down their lengths, in cm.

Here are her results.

5 6 5 2 4 5 8 7 5 4
 7 6 4 3 5 7 6 4 8 5

(a) Complete the frequency table to show Amanda's results.

Length in cm	Tally	Frequency
2		
3		
4		
5		
6		
7		
8		

(2)

(b) Write down the modal lengthcm (1)

(c) Work out the range.cm (1)

(4 marks)

2. Rosie had 10 boxes of drawing pins.

She counted the number of drawing pins in each box.

The table gives information about her results.

Number of drawing pins	Frequency	
29	2	
30	5	
31	2	
32	1	

Work out the mean number of drawing pins in a box.

.....

(3 marks)

3. Andy did a survey of the number of cups of coffee some pupils in his school had drunk yesterday.

The frequency table shows his results.

Number of cups of coffee	Frequency
2	1
3	3
4	5
5	8
6	5

- (a) Work out the number of pupils that Andy asked. (2)
- (b) Work out the mean number of cups of coffee drunk. (3)
- (5 marks)**

4. 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	

- (a) Write down the modal number of goals scored. (1)
- (b) Work out the range of the number of goals scored. (1)
- (c) Work out the mean number of goals scored. (3)
- (5 marks)**

5. 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

a) Work out an estimate for the mean time taken.

..... minutes (4)

b) State the modal class interval

..... (1)

c) Find the group containing the median

..... (2)

(7 marks)

6. The table shows information about the numbers of hours 40 children watched television one evening.

Number of hours (h)	Frequency
$0 \leq h < 1$	3
$1 \leq h < 2$	8
$2 \leq h < 3$	7
$3 \leq h < 4$	10
$4 \leq h < 5$	12

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

(1)

.....

- (b) Work out an estimate for the mean number of hours.

(4)

..... hours
(5 marks)

7. 80 people work in Jenny's factory.

The table shows some information about the annual pay of these 80 workers.

Annual pay (£ x)	Number of workers
$10\ 000 < x \leq 14\ 000$	32
$14\ 000 < x \leq 16\ 000$	24
$16\ 000 < x \leq 18\ 000$	16
$18\ 000 < x \leq 20\ 000$	6
$20\ 000 < x \leq 40\ 000$	2

(a) Write down the modal class interval.

.....
(1)

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

.....
(2)

(c) Work out an estimate for the mean annual pay.

.....
(3)

(d) Why is your answer to part (c) and estimate?

.....

 (1)
 (7 marks)

8. Caleb measured the heights of 30 plants.

The table gives some information about the heights, h cm, of the plants.

Height (h cm) of plants	Frequency		
$0 < h \leq 10$	2		
$10 < h \leq 20$	8		
$20 < h \leq 30$	9		
$30 < h \leq 40$	7		
$40 < h \leq 50$	4		

(a) Work out an estimate for the mean height of a plant.

.....
(3)

(b) Write down the modal class interval.

.....
(1)

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

.....
(2)

(d) Why is your answer to part (a) an estimate?

.....

 (1)
 (7 marks)

9. Marcus collected some pebbles.
He weighed each pebble.

The grouped frequency table gives some information about weights.

Weight (w grams)	Frequency		
$50 \leq w < 60$	5		
$60 \leq w < 70$	9		
$70 \leq w < 80$	22		
$80 \leq w < 90$	27		
$90 \leq w < 100$	17		

- (a) Work out an estimate for the mean weight of the pebbles.

.....
(3)

- (b) Write down the modal class interval.

.....
(1)

- (c) Find the class interval that contains the median.

.....
(2)

- (d) Why is your answer to part (a) an estimate?

.....
.....
.....

(1)
(7 marks)

80 Edexcel GCSE Mathematics (Linear) – 1MA0

QUESTIONNAIRE

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.



Instructions

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

Information

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Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

Advice

Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

Notes:

1. Make sure that your questions include a **TIME FRAME**; e.g. Day, Week, Month...
2. Always have an option for **ZERO** or **NONE**
3. **DO NOT** have **OVERLAPPING INTERVALS**
4. Include at least 4 tick boxes
5. Your last Interval should be: **More than**

1. Sam wants to find out the types of film people like best.

He is going to ask whether they like comedy films or action films or science fiction films or musicals best.

(a) Design a suitable table for a data collection sheet he could use to collect this information.

(2)

Sam collects his data by asking 10 students in his class at school.

This might **not** be a good way to find out the types of film people like best.

(b) Give **one** reason why.

.....
.....

(1)

(3 marks)

2. Alison wants to find out how much time people spend reading books.
She is going to use a questionnaire.

Design a suitable question for Alison to use in her questionnaire.

(2 marks)

3. Pradeep wants to find out how much time people spend playing sport. He uses this question on a questionnaire.

How much time do you spend playing sport?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 – 1 hours	1 – 2 hours	3 – 4 hours

- (a) Write down **two** things wrong with this question.

1.....
.....
2.....
.....

- (b) Design a better question for Pradeep’s questionnaire to find out how much time people spend playing sport. (2)

(2)
(4 marks)

-
4. Guy wants to find out how much time people spend watching television. He will design a questionnaire.
Design a suitable question for Guy’s questionnaire.

(2 marks)

5. Paula wants to find out how much money people spend buying CDs.

She uses this question on a questionnaire.

How much money do you spend buying CDs? <input type="checkbox"/> £10 – £30 <input type="checkbox"/> £30 – £50 <input type="checkbox"/> £50 – £70 <input type="checkbox"/> more than £70
--

(a) Write down **two** things wrong with this question.

1

.....

2

.....

(2)

Paula asks 100 people in a CD store to do her questionnaire.

(b) Her sample is biased.
Explain why.

.....

.....

(1)

(3 marks)

6. The manager of a department store has made some changes.

She wants to find out what people think of these changes.

She uses this question on a questionnaire.

“What do you think of the changes in the store?”

Excellent

Very good

Good

(a) Write down what is wrong about this question.

.....
.....
.....

(1)

This is another question on the questionnaire.

“How much money do you normally spend in the store?”

A lot

Not much

(b) Write down one thing that is wrong with this question.

.....
.....
.....

(1)

(Total 2 marks)

7. The local council is planning to build a new swimming pool.

The councillors want to get the views of the local people.

Councillor Smith suggests taking a sample from the people who attend the local sports centre.

(a) Explain why this would not be a good sample.

.....
.....
.....

(1)

Councillor Singh suggests taking a simple random sample of 100 people.

(b) Describe how the council could take a simple random sample.

.....
.....
.....

(1)

The council decided to use a questionnaire to find out how often people would use the swimming pool.

(c) Design a question the council could use on their questionnaire.

(1)
(Total 4 marks)

8. Gordon is going to open a restaurant.
 He wants to know how often people eat out at a restaurant.
 He designs a questionnaire.
 He uses this question on a questionnaire.

"How often do you go to a restaurant?"		
<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>
Never	Sometimes	Often

(a) Write down two things that are wrong about this question.

1.....

 2.....

(2)

(b) Design a more suitable question Gordon could use to find out how often people eat out at a restaurant.

(2)

Gordon asks his family "Do you agree that pizza is better than pasta?"

This is not a good way to find out what people who might use his restaurant like to eat.

(c) Write down two reasons why this is not a good way to find out what people who might use his restaurant like to eat.

1st reason

.....

2nd reason

.....

(2)

(Total 6 marks)

9. Gary wants to find out how much time teenagers spend listening to music. He uses this question on a questionnaire.

How many hours do you spend listening to music?			
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1 to 5	5 to 10	10 to 20	over 20

- (a) Write down **two** things wrong with this question.

1

.....

2

.....

(2)

- (b) Design a better question for Gary's questionnaire to find out how much time teenagers spend listening to music.

(2)

(Total 4 marks)

10. Sophie wants to find out the amount of time people exercise. She will use a questionnaire.

- (a) Design a suitable question for Sophie to use in her questionnaire. You must include some response boxes.

(2)

Sophie asks the people at her swimming pool to complete her questionnaire.

This may **not** be a suitable sample.

- (b) **Give a reason why.**

.....

.....

(1)

(Total 3 marks)