

Practice Paper

Edexcel Linear Specification

Foundation Tier

March 2013

Worked Solutions



This paper is produced as a best guess for the non-calculator paper.

We offer this paper as a service, but make no great claims as to its accuracy.

Time: 1 hour 45 minutes

Marks: 100

Advice

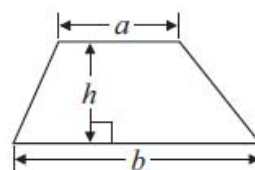
- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

GCSE Mathematics 1MA0

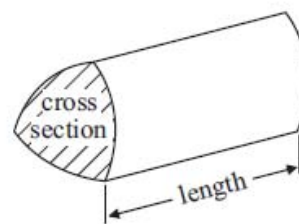
Formulae: Foundation Tier

**You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.**

Area of trapezium $= \frac{1}{2} (a + b)h$



Volume of prism $= \text{area of cross section} \times \text{length}$



Question 1

- (a) Write in figures the number forty six thousand and nine.

46 009

Answer (1 mark)

- (b) Write in figures a number that is between 2000 and 3000

e.g. 2037

Answer (1 mark)

Question 2

Here are two readings from a gas meter.

0	1	9	6	2
---	---	---	---	---

January

0	2	1	5	9
---	---	---	---	---

April

The difference in the meter readings gives the number of units of gas used.

- (a) Work out the number of units of gas used.

197

.....
(1 mark)

The cost of each unit of gas is 21p.

- (b) Work out the cost of the gas used between January and April.
Give your answer in pounds (£).

197 x 21

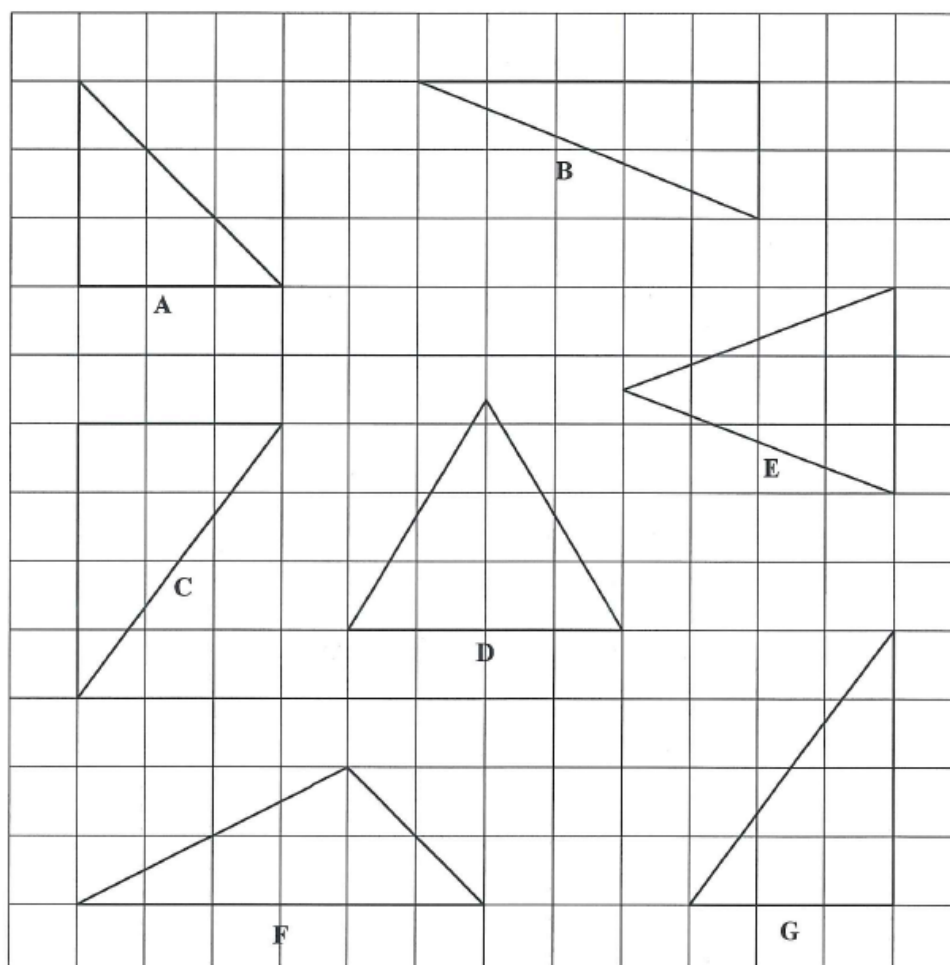
= 4137 p

£41.37

.....
(3 marks)

Question 3

Here are 7 triangles.



(a) Write down the letter of the triangle that is

(i) equilateral,

D

(ii) both isosceles **and** right-angled.

A

(2)

(b) Write down the letters of the pair of congruent triangles.

C and G

(1)

(Total 3 marks)

Question 4

Samir wrote down the temperatures in 6 different cities at midnight one day.

City	Temperature
Manchester	-1 °C
Edinburgh	-6 °C
London	3 °C
Aberdeen	-11 °C
Birmingham	2 °C
Glasgow	-8 °C

(a) Write down

(i) the **highest** temperature,

.....³ °C

(ii) the **lowest** temperature.

.....⁻¹¹ °C
(2)

(b) Work out the difference in the temperatures between

(i) Manchester and Birmingham,

.....³ °C

(ii) Edinburgh and Glasgow.

.....² °C
(2)

At 10 a.m. the next morning, the temperature in Glasgow had risen by 5 °C.

(c) Work out the temperature in Glasgow at 10 a.m. the next morning.

.....⁻³ °C
(1)

(Total 5 marks)

Question 5

The table shows the distances, in miles, between 4 cities.

London			
74	Portsmouth		
39	58	Reading	
97	41	57	Salisbury

- (a) Write down the distance between London and Salisbury.

..... **97** miles
(1)

- (b) Which two cities are the shortest distance apart?

..... **LONDON** and **READING**
(1)

Nazim drives from Portsmouth to Salisbury.
He then drives from Salisbury to Reading.
Finally he drives from Reading to Portsmouth.

- (c) Work out the total distance Nazim drives.

$$\begin{array}{r}
 P \rightarrow S \quad 41 \\
 S \rightarrow R \quad 57 \\
 R \rightarrow P \quad 58 \\
 \hline
 156
 \end{array}$$

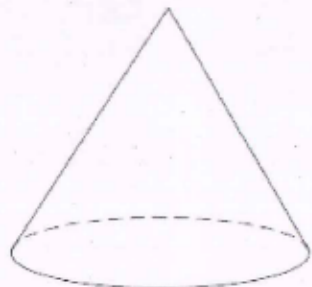
..... **156** miles
(3)

(Total 5 marks)

Question 6

Write down the name of each of these two 3-D shapes.

(i)

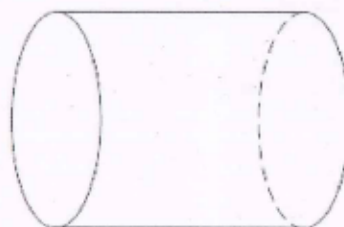


CONE

(i)

(CIRCLE-BASED
PYRAMID)

(ii)



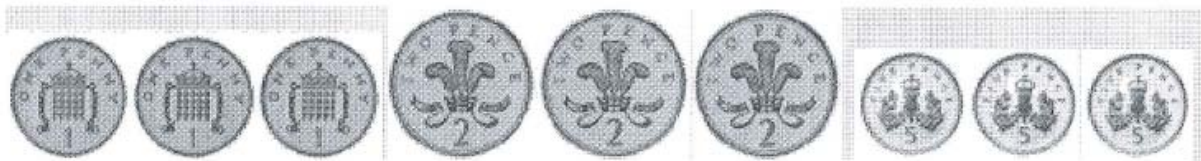
CYLINDER

(ii)

(Total 2 marks)

Question 7

Here are some coins.

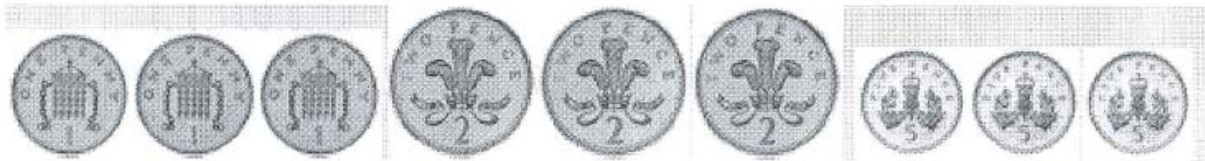


Alison puts these 9 coins in a row.
She picks 3 of the coins to make 8 pence.

- (a) Write down the value of each of the three coins she picks.

1 p
2 p
5 p
(1)

Alison puts the 9 coins in a row again.



- (b) (i) What is the smallest amount of money she could make with 5 of these coins?

7 p

- (ii) What is the largest amount of money she could make with 5 of these coins?

19 p
(2)

(Total 3 marks)

Question 8

- . Emma has 7 chocolates in a box.
4 of the chocolates are white chocolate.
The other chocolates are dark chocolate.

Emma takes at random a chocolate from the box.

- (a) What is the probability that Emma takes a white chocolate?

$$\frac{4}{7}$$

(1)

- (b) What is the probability that Emma takes a dark chocolate?

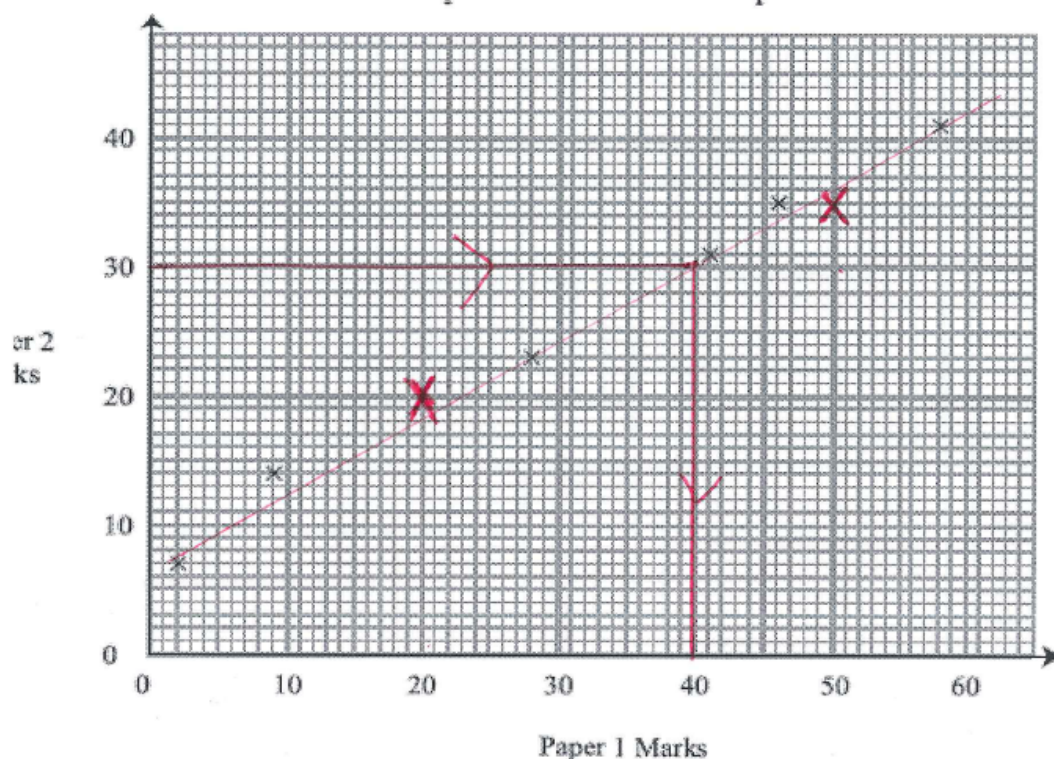
$$\frac{3}{7}$$

(2)

(Total 3 marks)

Question 9

The scatter graph shows some information about the marks of six students. It shows each student's mark on Paper 1 and their mark on Paper 2.



The table shows the marks on Paper 1 and Paper 2 for two more students, A and B.

	Student A	Student B
Paper 1 mark	20	50
Paper 2 mark	20	35

(a) On the scatter graph, plot the information from the table. (1)

(b) Describe the correlation between the marks on Paper 1 and the marks on Paper 2.
 POSITIVE

(1)

Another student has a mark of 30 on Paper 2.

(c) Estimate the mark on Paper 1 for this student.

40
(2)
(Total 4 marks)

(Accept ans in 39-41 range)

Question 10

(a) Simplify $a + a + a + a$

$$\begin{array}{r} 4a \\ \hline \end{array} \quad (1)$$

(b) Simplify $3 \times b \times 4$

$$\begin{array}{r} 12b \\ \hline \end{array} \quad (1)$$

(c) Simplify completely $4a + 5b - 2a + b$

$$\begin{array}{r} 2a + 6b \\ \hline \end{array} \quad (2)$$

Question 11

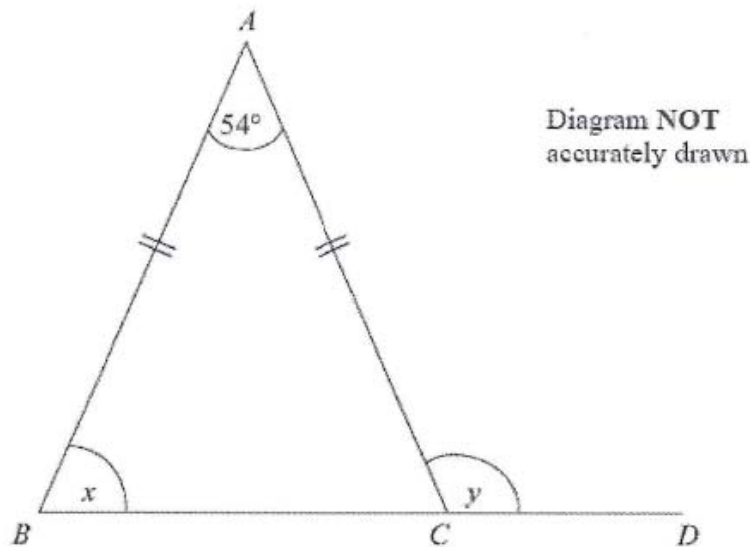
Use your calculator to work out $\frac{4.7}{9.4 - 3.5}$

Write down all the figures on your calculator display.

$$\frac{4.7}{5.9}$$

$$= \begin{array}{r} 0.796610169 \\ \hline \end{array} \quad (2)$$

Question 12



ABC is an isosceles triangle.
 BCD is a straight line.
 $AB = AC$.
 Angle $A = 54^\circ$.

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

$$108 - 54 = 126$$

$$126 \div 2 = 63$$

63

- (ii) Give a reason for your answer.

- Angles in a triangle add up to 180°
- Isosceles triangle, so base angles equal.

(3)

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

$$180 - 63 = 117$$

117

(1)

(Total 4 marks)

Question 13

Joanna made a list of the ages of the children in a playgroup.

~~4~~ ~~3~~ ~~1~~ ~~4~~ ~~2~~ ~~4~~ ~~4~~ ~~2~~ ~~1~~ ~~2~~

(a) Find the median age of the children in the play group.

1 1 2 2 2 3 4 4 4 4

2.5

(2)

(b) Find the range of the ages of the children in the playgroup.

4 - 1 =

3

(1)

(Total 3 marks)

Question 14

The stem and leaf diagram shows information about the areas, in cm^2 , of 31 photographs.

0	8 8 9
1	1 1 3 4 4 8 9
2	0 3 5 5 7 8 9
3	2 2 3 3 5 8 8 8
4	1 1 3 3 5 8

Key 4 | 1 represents 41 cm^2

- (a) Write down the number of photographs that have an area of 38 cm^2 .

3

(1)

- (b) Find the median area.

28

cm^2

(2)

(Total 3 marks)

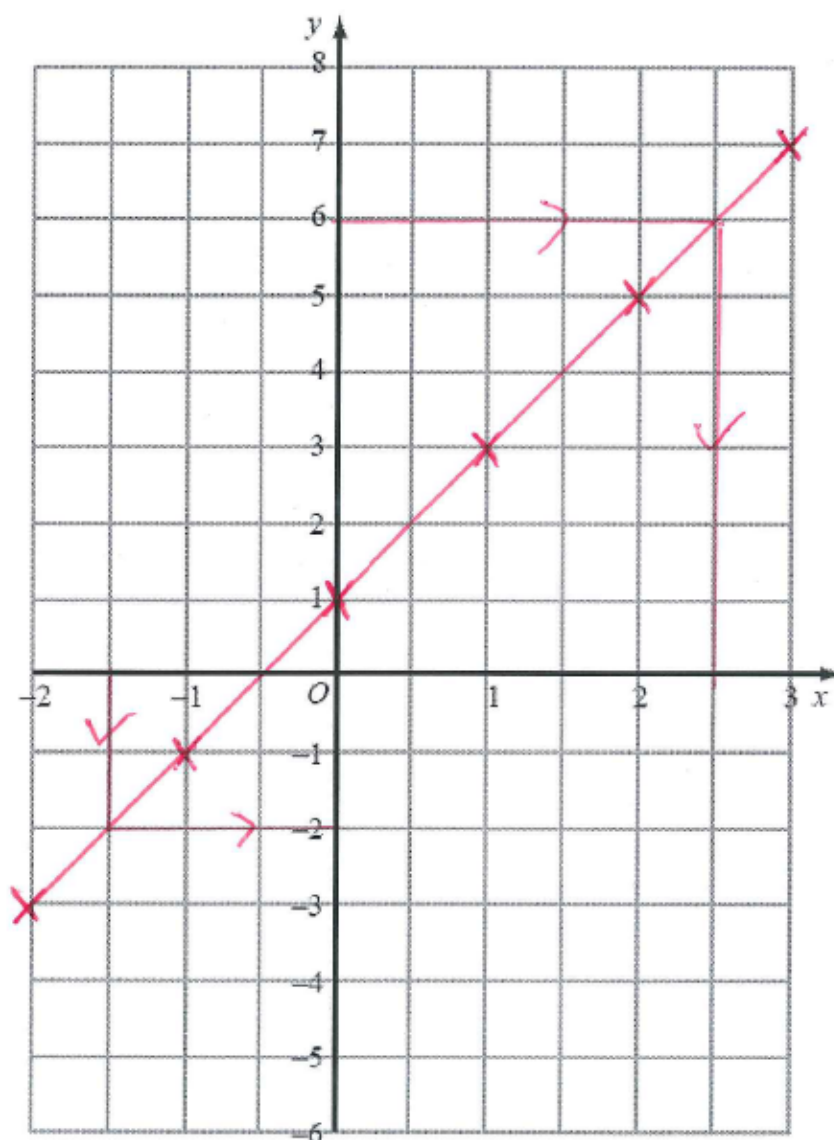
Question 15

(a) Complete the table of values for $y = 2x + 1$

x	-2	-1	0	1	2	3
y	-3	-1	1	3	5	7

(2)

(b) On the grid, draw the graph of $y = 2x + 1$



(2)

Question 16

Here are the ingredients needed to make 1000 ml of custard.

<p>Custard</p> <p>makes 1000 ml</p> <p>800 ml of milk</p> <p>6 large egg yolks</p> <p>100 g sugar</p> <p>4 teaspoons of cornflour</p>
--

(a) Work out the amount of sugar needed to make 2500 ml of custard.

$$100 \times 2.5$$

$$\begin{array}{r} 250 \\ \hline \end{array} \text{g} \\ (2)$$

(b) Work out the amount of milk needed to make 1500 ml of custard.

$$800 \times 1.5$$

$$\begin{array}{r} 1200 \\ \hline \end{array} \text{ml} \\ (2)$$

(Total 4 marks)

Question 17

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	$G \times N$
1	9	9
2	3	6
3	5	15
4	3	12

Work out the mean number of goals scored.

20

42

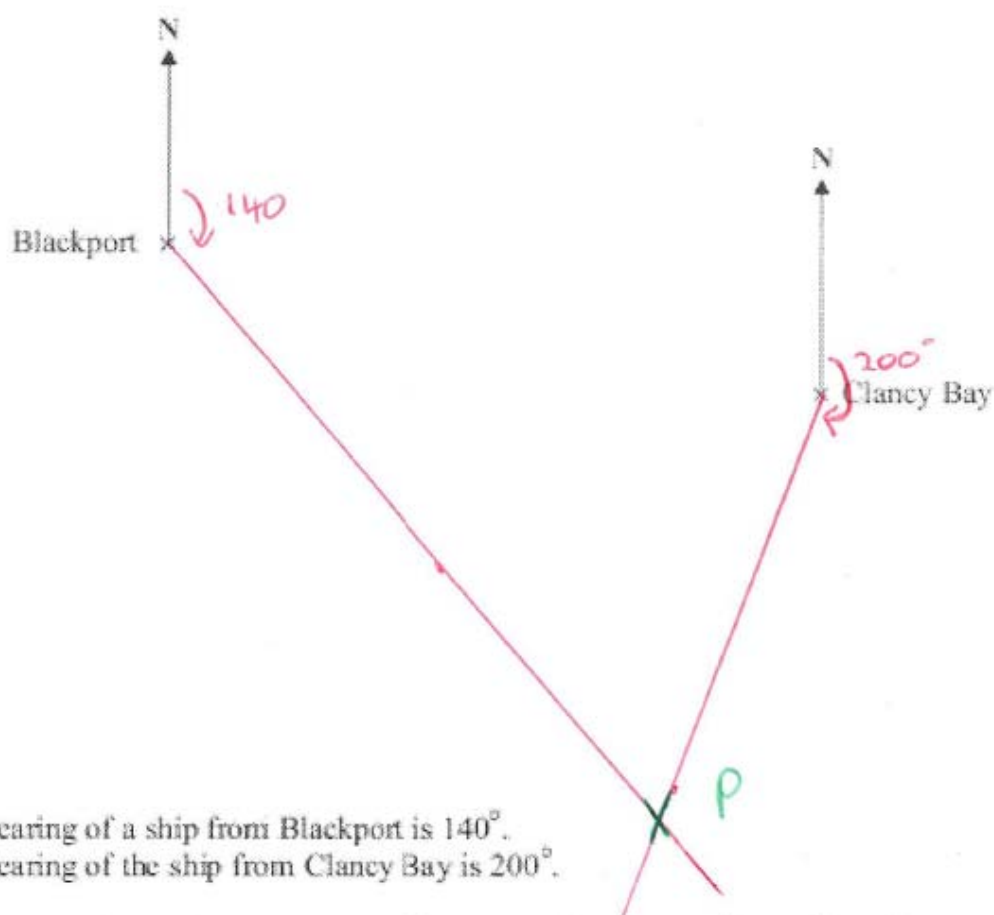
$$\text{Mean} = \frac{42}{20} = 2.1$$

2.1

(Total 3 marks)

Question 18

. The diagram shows the position of Blackport and the position of Clancy Bay.



The bearing of a ship from Blackport is 140° .
The bearing of the ship from Clancy Bay is 200° .

In the space above, draw an accurate diagram to show the position of the ship.
Mark this position with a cross \times . Label it P .

Question 19

- Colin goes to Switzerland.
The exchange rate is £1 = 2.30 francs.

He changes £400 into francs.

- (a) How many francs should he get?

$$2.30 \times 400 = 920$$

920 francs
(2)

In Switzerland, Colin buys a hat.
The cost of the hat is 46 francs.

- (b) Work out the cost of the hat in pounds.

$$\frac{46}{2.30} = 20$$

£ 20
(2)

(Total 4 marks)

Question 20

(a) Solve $x - 6 = 11$

$$x = 11 + 6$$

$$x = \overset{17}{\dots\dots\dots} \quad (1)$$

(b) Solve $4y + 2 = 9$

$$4y = 7$$

$$y = \frac{7}{4}$$

$$y = \overset{1.75}{\dots\dots\dots} \quad (2)$$

(c) Solve $2(w + 1) = 10$

$$2w + 2 = 10$$

$$2w = 8$$

$$w = \frac{8}{2} = 4$$

$$w = \overset{4}{\dots\dots\dots} \quad (2)$$

(Total 5 marks)

Question 21

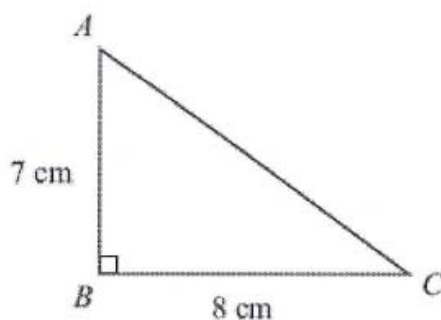


Diagram NOT
accurately drawn

ABC is a right-angled triangle.

$AB = 7$ cm,

$BC = 8$ cm.

Work out the length of AC .

Give your answer correct to 2 decimal places.

$$\begin{aligned} AC^2 &= 7^2 + 8^2 \\ &= 49 + 64 \\ &= 113 \end{aligned}$$

$$\begin{aligned} AC &= \sqrt{113} \\ &= 10.630 \end{aligned}$$

$$\underline{\hspace{1cm} 10.63 \hspace{1cm}} \text{ cm}$$

(Total 3 marks)

Question 22

The equation

$$x^3 - x = 30$$

has a solution between 3 and 4

Use a trial and improvement method to find this solution.

Give your answer correct to 1 decimal place.

You must show **all** your working.

x	$x^3 - x$	High/Low
3	$27 - 3 = 24$	Low
e.g. 3.5	39.375	High
3.4	35.904	High
3.3	32.637	High
3.2	29.568	Low
3.25	31.078	High
Answer lies between		3.2 & 3.25

$$x = \underline{\quad 3.2 \quad}$$

(Total 4 marks)

Question 23

The diameter of a circle is 15 centimetres.

Work out the circumference of the circle.

Give your answer, in centimetres, correct to 1 decimal place.

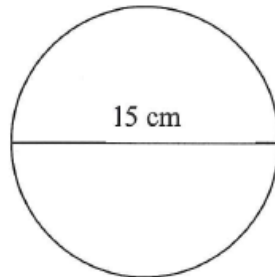


Diagram **NOT**
accurately drawn

$$C = \pi \times d$$

$$= \pi \times 15$$

$$= 47.1238898$$

47.1

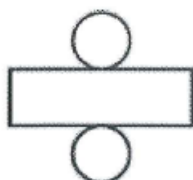
.....
(3 marks)

Question 24

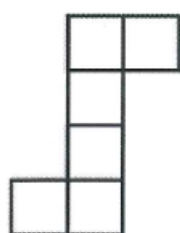
Here are the names of some solids.

sphere cuboid pyramid cone cube cylinder

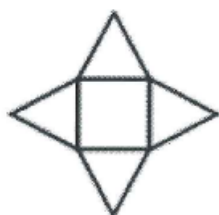
Choose a word from the list to complete each of these statements.



is the net of a **CYLINDER**



is the net of a **CUBE**

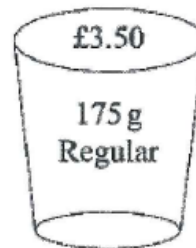
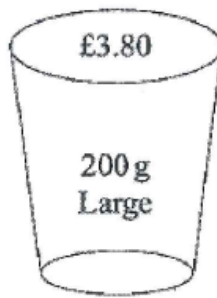


is the net of a **PYRAMID**

[3]

Total 3 marks

Question 25



A Large tub of popcorn costs £3.80 and holds 200 g.

A Regular tub of popcorn costs £3.50 and holds 175 g.

Rob says that the 200 g Large tub is the better value for money.

Linda says that the 175 g Regular tub is the better value for money.

Who is correct?

ROB

Explain the reasons for your answer.

You must show all your working.

Large Tub.

$$\text{Price / g} = £3.80 / 200 = £0.019$$

Small Tub

$$\text{Price / g} = £3.50 / 175 = £0.02$$

Small Tub costs more / gm.

Rob is correct.

Total 3 marks

Question 26

The two-way table shows some information about the eating habits of the 30 students.

	Boys	Girls	Total
Meat eating	12	10	22
Vegetarian	2	5	7
Vegan	0	1	1
Total	14	16	30

Complete the two-way table.

Total 3 marks

Question 27

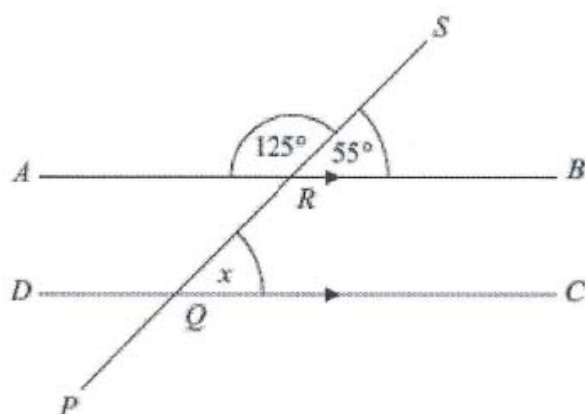


Diagram NOT
accurately drawn

ARB is parallel to DQC .

$PQRS$ is a straight line.

Angle $SRB = 55^\circ$.

(i) Find the size of the angle marked x .

55°

(ii) Give a reason for your answer.

Corresponding Angles

(Total 2 marks)

Question 28

A museum has these charges.

Adult Ticket	£2.50
Child Ticket	£1.25
Family Ticket (2 adults and 3 children)	
	£6.50

Mr and Mrs Iqbal and their three children visit the museum.

Work out how much they will save by buying one family ticket rather than 5 separate tickets.

5 Separate Tickets

$$\begin{array}{rcl}
 2 \text{ Adults} & = & £5 \\
 3 \text{ Children} & = & £3.75 \\
 \hline
 \text{Total} & & £8.75
 \end{array}$$

$$\begin{array}{r}
 2.25 \\
 \hline
 \text{£}
 \end{array}$$

(Total 4 marks)

Saving

$$\begin{array}{r}
 8.75 \\
 - 6.50 \\
 \hline
 2.25
 \end{array}$$

Question 29

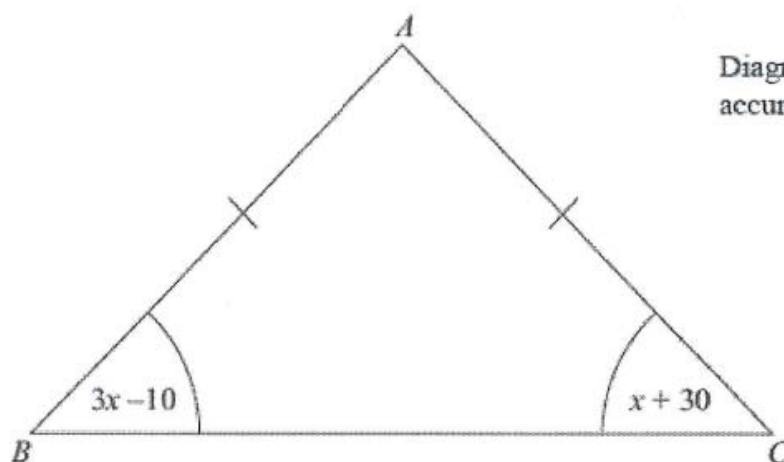


Diagram NOT
accurately drawn

ABC is an isosceles triangle.

$AB = AC$

- (a) Explain why $3x - 10 = x + 30$

Base angles of an isosceles triangle are equal.

(1)

- (b) Solve $3x - 10 = x + 30$

$$2x - 10 = 30$$

$$2x = 40$$

$$x = \frac{40}{2}$$

$$= 20.$$

$$x = \underline{20}$$

(2)

(Total 3 marks)