Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						1	3	8	0	/	2	F	Signature	

Paper Reference(s)

1380/2F

Examiner's use only

Team Leader's use only

Edexcel GCSE

Mathematics (Linear) – 1380

Paper 2 (Calculator)

Foundation Tier

Friday 10 June 2011 – Morning

Time: 1 hour 30 minutes

Materials required for examination
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator.
Tracing paper may be used.

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
You must NOT write on the formulae page.
Anything you write on the formulae page will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 28 questions in this question paper. The total mark for this paper is 100.
There are 24 pages in this question paper. Any blank pages are indicated.
Calculators may be used.
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

Turn over

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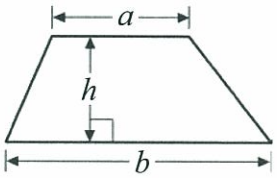
GCSE Mathematics (Linear) 1380

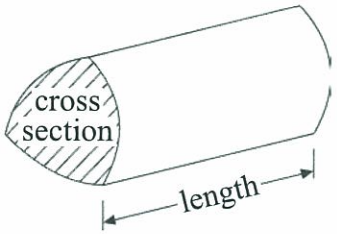
Formulae: Foundation Tier

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 = area of cross section × length



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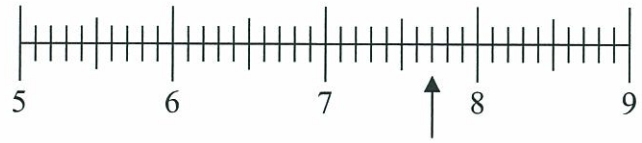
Answer ALL TWENTY EIGHT questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. (a)



Write down the number marked by the arrow.

7.7

.....

(1)

(b)

Write down the number marked by the arrow.

32

.....

(1)

(c)

Find the number –8.3 on the number line.

Mark it with an arrow (↑).

(1) **Q1**

(Total 3 marks)

Turn over

Leave blank

2. Here is a list of numbers.

2	5	8	10	13	14	16	18

(a) From the list, write down

(i) an odd number,

5

(ii) the multiple of 6,

18

(iii) the square number.

$4^2 = 16$

16

(3)

Erin says that 8 is a prime number.

(b) Erin is wrong.
Explain why.

A prime number is a positive integer greater than 1 which can only be divided by itself and 1 without leaving a remainder. Since 8 also has factors 2 and 4, it is not a prime number.

(1)

(Total 4 marks)

Q2

3.

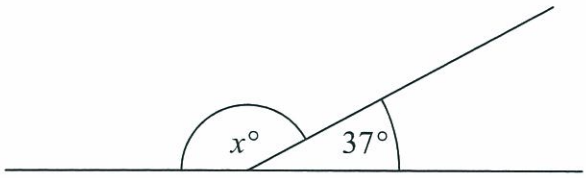


Diagram **NOT** accurately drawn

(i) Work out the value of x.

$180 - 37 = 143°$

$x =$ 143°

(ii) Give a reason for your answer.

Angles across a straight line add to 180°

(Total 2 marks)

Q3

Leave blank

4. The tally chart shows information about the numbers of text messages sent by some students last week.

Name of student	Tally	Frequency
Anna	𝍸 𝍸 𝍸 𝍸 IIII	24
Bhavini	𝍸 𝍸 II	12
Cassie	𝍸 𝍸 𝍸	15
David	𝍸 IIII	9

(i) Complete the frequency column.

The pictogram shows the numbers of text messages sent by Anna and Cassie.

Anna	□ □ □ □ □ □
Bhavini	□ □ □
Cassie	□ □ □ ◨
David	□ □ ▫

Key: □ represents 4 text messages

(ii) Complete the pictogram and the key.

Q4

(Total 5 marks)

Leave blank

5.

(a) Measure the length of the line PQ.
Give the units with your answer.

8.4 cm

(2)

(b) On the diagram, mark with a cross (×) the midpoint of the line PQ.

(1)

Q5

(Total 3 marks)

6. Daley is at a sports camp.
He can play one of three sports in the morning and one of three sports in the afternoon.

Morning	Afternoon
Tennis (T) Football (F) Basketball (B)	Rugby (R) Cricket (C) Golf (G)

List all the possible combinations he can play.
The first combination has been done for you.

(T, R) (T, C) (T, G) (F, R) (F, C) (F, G)
(B, R) (B, C) (B, G)

Q6

(Total 2 marks)

7. (a) Write 15% as a decimal.

$\frac{15}{100} = 0.15$

0.15

(1)

(b) Write 7% as a fraction.

$\frac{7}{100}$

$\frac{7}{100}$

(1)

Q7

(Total 2 marks)

Leave blank

8.

Jessie's Café

Pizza	£2.35	Coffee	80p
Burger	£1.70	Tea	65p
Sandwich	£1.30	Juice	75p

Lisa buys a pizza and a coffee.

(a) Work out the total cost.

$2.35 + 0.8 = 3.15$

£ 3.15

(1)

Deborah buys 2 burgers and 2 teas.

(b) Work out the total cost.

$2(1.70) + 2(0.65)$

$= 4.7$

£ 4.70

(2)

Michelle has £10
She wants to buy as many sandwiches as possible.

(c) Work out how many sandwiches she can buy.

$\frac{10}{1.30} = 7.69$ (3s.f.).

∴ 7 is the largest number of sandwiches she can buy.

7

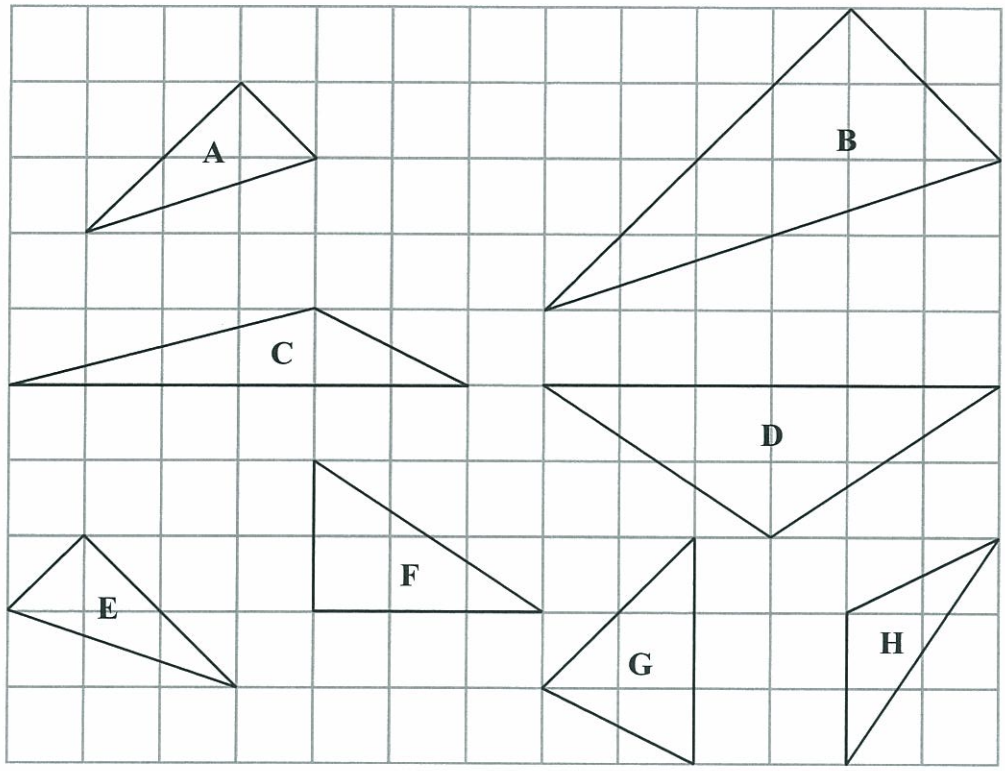
(2)

Q8

(Total 5 marks)

Leave blank

9. Here are some triangles on a grid.



One of these triangles is an isosceles triangle.

(a) Write down the letter of this triangle.

D

(1)

(b) Write down the special name for triangle **F**.

Right-angled triangle

(1)

Two of the triangles are congruent.

(c) Write down the letters of these two triangles.

A and E

(1)

Triangle **B** is an enlargement of triangle **A**.

(d) Write down the scale factor of the enlargement.

2

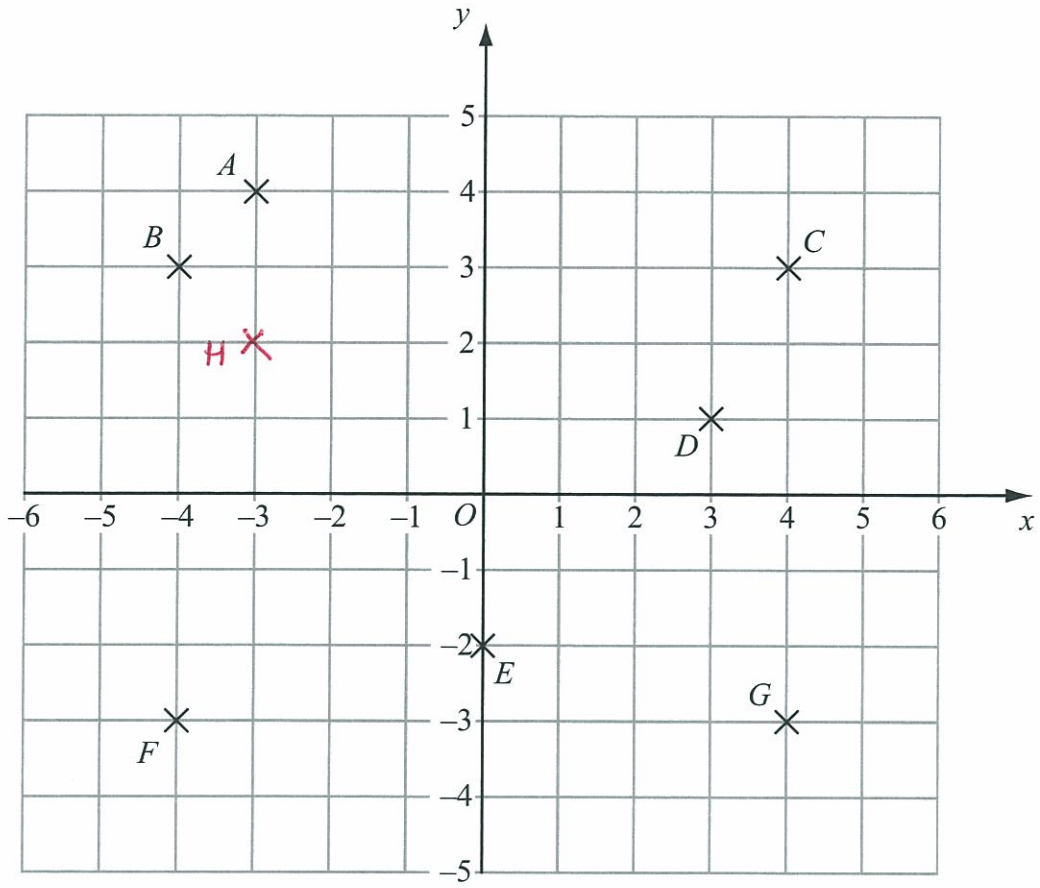
(1)

Q9

(Total 4 marks)

Leave blank

10.



Seven points are marked on the coordinate grid.
One of these points has coordinates (4, −3).

(a) Which point?

G

(1)

(b) (i) Write down the coordinates of the point *D*.

(3 , 1)

(ii) Write down the coordinates of the point *E*.

(0 , -2)

(2)

(c) On the grid, plot the point (−3, 2).
Label this point *H*.

(1) **Q10**

(Total 4 marks)

Turn over

Leave blank

11. (a) Simplify $7x + 4x$

11x

(1)

(b) Simplify $y \times y \times y \times y$

y^4

(1)

(c) Simplify $6e + 5f + e - 3f$

7e + 2f

(2) Q11

(Total 4 marks)

12. The table shows some information about drivers in the U.K. over 75 years of age.

Age	Percentage of drivers over 75
76 to 80	57 %
81 to 85	30 %
86 to 90	10.7
91 to 95	1.9 %
96 or more	0.4 %

(a) Complete the table.

(2)

There are 1 616 000 drivers in the U.K. over 75 years of age.
30% of these drivers are 81 to 85 years of age.

(b) How many of these drivers are 81 to 85 years of age?

30% of 1,616,000

= 0.3 × 1,616,000

= 484,800

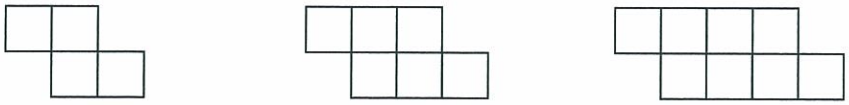
484,800

(2) Q12

(Total 4 marks)

Leave blank

13. Here is a sequence of patterns made from squares.



Pattern Number 1 Pattern Number 2 Pattern Number 3

(a) Draw Pattern Number 4

(1)

(b) Complete the table.

Pattern Number	1	2	3	4	5
Number of squares	4	6	8	10	12

(1)

(c) Find an expression, in terms of n, for the number of squares in Pattern Number n.

$n \longrightarrow 1 \quad 2 \quad 3 \quad 4 \quad 5$

$f(n) \longrightarrow 4 \quad 6 \quad 8 \quad 10 \quad 12$

Differences $\longrightarrow$ (2) 2 2 2

$2n + 2$

$2n + 2$

(2)

(Total 4 marks)

Q13

Leave blank

14. Here are the shoe sizes of 9 people.

3 3 2 7 8 11 4 8 8

(a) Find the mode.

8

(1)

(b) Find the median.

2 3 3 4 (7) 8 8 8 11

↳ Middle value

7

(2)

(c) Work out the range.

Max - Min = 11 − 2 = 9

9

(2)

(d) Work out the mean.

Mean = $\frac{\text{Sum of } x}{\text{frequency}}$ or just $\frac{\Sigma x}{f}$

$= \frac{3+3+2+4+7+3(8)+11}{9} = \frac{54}{9} = 6$

6

(2)

(Total 7 marks)

Q14

15. Use your calculator to work out

$\sqrt{38.44} + 7.3$

13.5

(Total 2 marks)

Q15

Leave blank

16. (a) Solve $c + 6 = 10$

$c = 10 - 6 = 4$

$c =$ 4
(1)

(b) Solve $\frac{e}{3} = 6$

$e = 6(3) = 18$

$e =$ 18
(1)

(c) Solve $2x - 3 = 10$

$x = \frac{10 + 3}{2} = \frac{13}{2} = 6\frac{1}{2}$ or 6.5

$x =$ 6.5
(2)

Q16

(Total 4 marks)

17. Mabintou buys 8 CDs.
Each CD costs x pounds.
The total cost is T pounds.

Find a formula for T in terms of x.

$T = 8x$

Q17

(Total 2 marks)

Leave blank

18.

Small coach	25 seats
Medium coach	38 seats
Large coach	84 seats
Double decker coach	107 seats

Ali wants to hire some coaches.
He needs enough seats on the coaches for at least 350 people.

A coach company has 5 small coaches,
3 medium coaches,
and 1 double decker coach
that Ali can hire.

Have these coaches enough seats for at least 350 people?
You must show all your working.

$5(25) + 3(38) + 107$

$= 346$

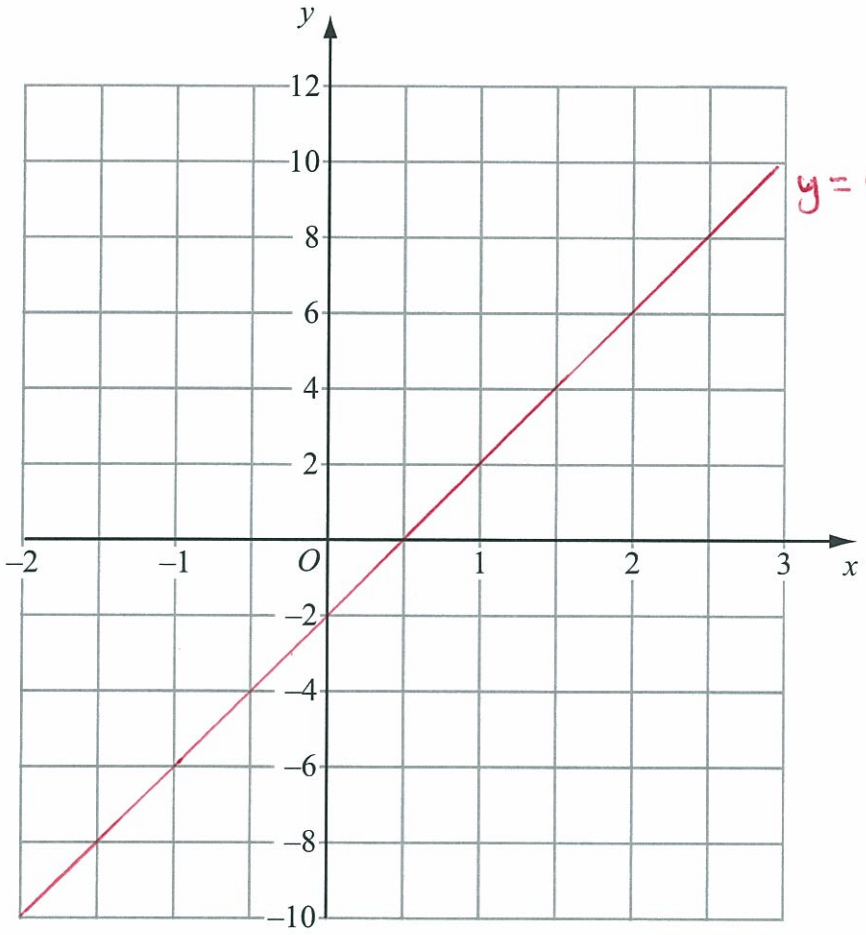
∴ These coaches do not have enough seats for 350 people.

Q18

(Total 3 marks)

Leave blank

19. On the grid, draw the graph of $y = 4x - 2$

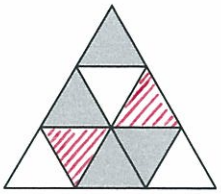


Q19

(Total 3 marks)

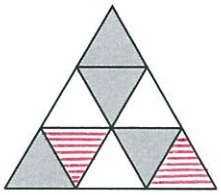
Leave blank

20. (a) Shade **two** more triangles to make a pattern with 1 line of symmetry.



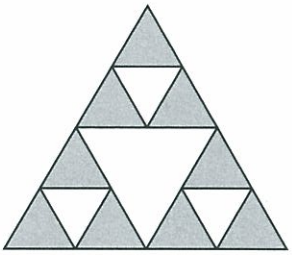
(1)

(b) Shade **two** more triangles to make a pattern with rotational symmetry of order 3



(1)

This shape is made from equilateral triangles.



(c) What fraction of the above shape is shaded?

$\frac{9}{16}$

.....

(2)

Leave blank

This shape is made out of wire.

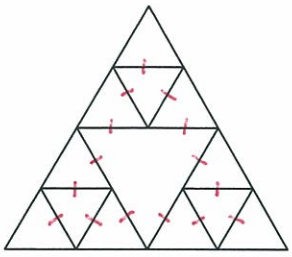
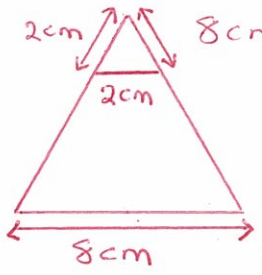


Diagram **NOT** accurately drawn

The triangles are all equilateral triangles.
The perimeter of the outside of the shape is 24 cm.

(d) Work out the **total** length of wire needed to make this shape.



8cm ÷ 4 = 2cm

There is a total of 15 interior segments of wire, each 2cm in length, which do not also form part of the exterior perimeter.

∴ Total length of wire needed to make this shape is given by 24 + 15(2)

= 24 + 30 = 54 cm

54 ..... cm

(3) **Q20**

(Total 7 marks)

21. Mel buys 3 kg of carrots and 200 g of mushrooms.
The total cost is £2.95
1 kg of mushrooms costs £3.20

Work out the cost of 1 kg of carrots.

Cost of 200g of mushrooms is given by $\frac{3.20}{5} = £0.64$

Cost of 3kg of carrots is given by $2.95 - 0.64 = £2.31$

∴ Cost of 1kg of carrots = $\frac{2.31}{3} = £0.77$ or 77p

£0.77 .....

(Total 4 marks) **Q21**

Leave blank

22. Each student at a college studies one of four languages.

The table shows the probability a student chosen at random studies German or Russian or French.

Language	German	Spanish	Russian	French
Probability	0.2		0.1	0.5

A student is chosen at random.

(a) Work out the probability that the student studies Spanish.

$1 - 0.2 - 0.1 - 0.5 = 0.2$

0.2

.....

(2)

There are 800 students at the college.

(b) Work out the number of students who study German.

$0.2 \times 800 = 160$

160

.....

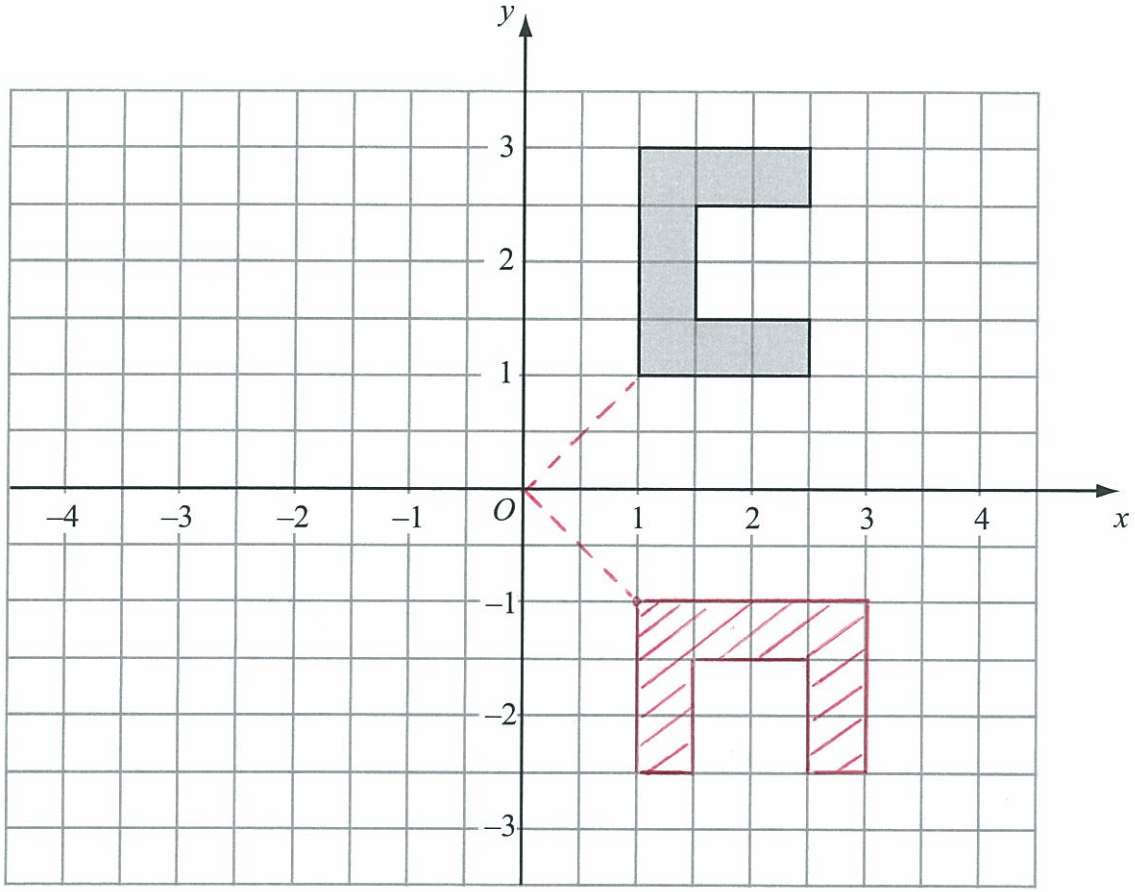
(2)

(Total 4 marks)

Q22

Leave blank

23.



Rotate the shape 90° clockwise, centre O.

Q23

(Total 2 marks)

Leave blank

24.

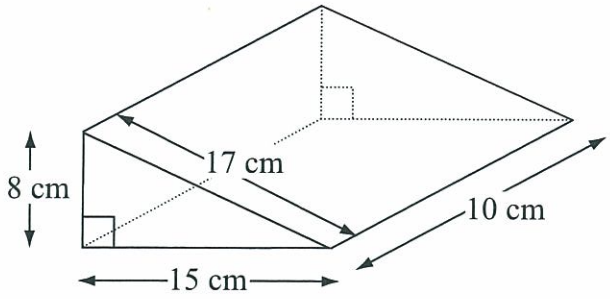


Diagram **NOT** accurately drawn

Work out the **total** surface area of the triangular prism.

$\frac{8(15)}{2} + \frac{8(15)}{2} + 17(10) + 15(10) + 8(10)$

$= 520 \text{ cm}^2$

520 ..... cm^2

Q24

(Total 3 marks)

Leave blank

25. Here are the ages, in years, of 16 people.

36	48	18	25	36	28	45	30
38	27	41	16	36	48	28	21

Draw an ordered stem and leaf diagram to show this information.
You must include a key.

1	6 8
2	1 5 7 8 8
3	0 6 6 6 8
4	1 5 8 8

Key: 1 \| 6 = 16

Q25

(Total 3 marks)

Leave blank

26. Bob has 120 beads.
The beads are either red or green.

Bob gives $\frac{3}{4}$ of the beads to his friend.

$\frac{2}{3}$ of the beads Bob now has are red.

Work out how many green beads Bob now has.

$\frac{1}{4}$ of 120 = 30

No. of green beads is given by

$\frac{1}{3} \times 30 = 10$

10

(Total 3 marks)

Q26

Leave blank

27. The diagram shows a circular pond with a path around it.

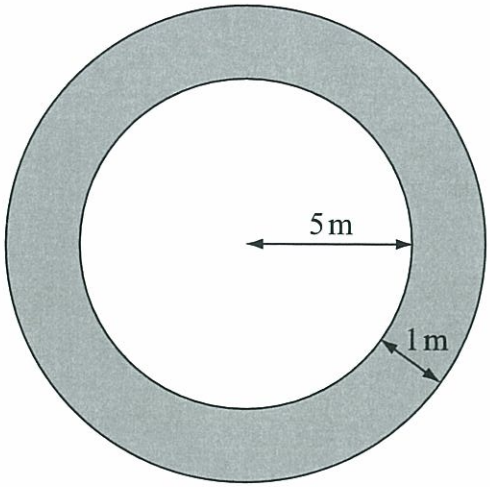


Diagram **NOT** accurately drawn

The pond has a radius of 5 m.
The path has a width of 1 m.

Work out the area of the path.
Give your answer correct to 3 significant figures.

Area of path = Area of large circle − Area of small circle

$= \pi(6^2) - \pi(5^2)$

$= 36\pi - 25\pi = 11\pi$

$= 34.6 \text{ m}^2$ (3 s.f.).

34.6 ..... m^2

(Total 3 marks)

Q27

Turn over

Leave blank

28. The equation

$x^3 + 5x = 67$

has a solution between 3 and 4

Use a trial and improvement method to find this solution.
Give your answer correct to one decimal place.
You must show **ALL** your working.

x	x^3+5x	
3.5	60.375	< 67
3.8	73.872	> 67
3.7	69.153	> 67
3.6	64.656	< 67
3.65	66.877125	< 67

$\therefore\ 3.65 < x < 3.7$

In other words, x is closer to 3.7 than to 3.6 and so $x = 3.7$ (correct to 1 d.p.).

$x =$ 3.7 **Q28**

(Total 4 marks)

TOTAL FOR PAPER: 100 MARKS

END