OCR
RECOGNISING ACHIEVEMENT

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Tuesday 6 November 2012 – Morning

GCSE MATHEMATICS B

J567/01 Paper 1 (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Geometrical instruments
- Tracing paper (optional)

Duration: 1 hour 30 minutes

J567701

J517151112

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is **100**.
- This document consists of **24** pages. Any blank pages are indicated.

WARNING

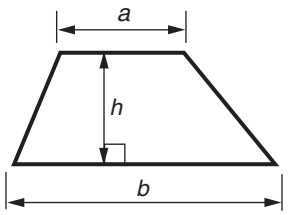
No calculator can be used for this paper

This paper has been pre modified for carrier language

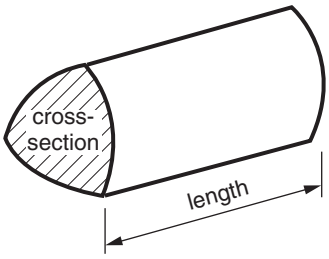
OCR is an exempt Charity

Formulae Sheet: Foundation Tier

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

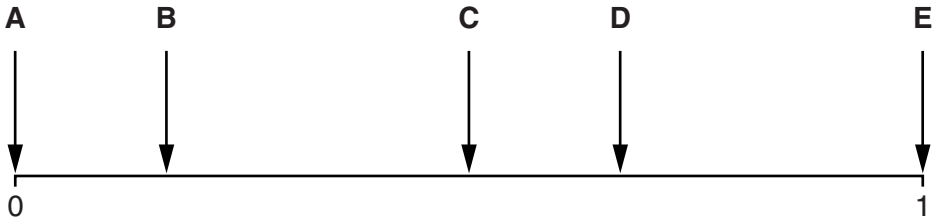


Volume of prism = (area of cross-section) × length



PLEASE DO NOT WRITE ON THIS PAGE

1 This probability scale shows the probability of some of the outcomes when a fair six-sided dice is thrown.



Match a letter on the probability scale with each of the following outcomes.

(a) Throwing an even number.

(a) Letter _____ **[1]**

(b) Throwing a 5.

(b) Letter _____ **[1]**

(c) Throwing a 7.

(c) Letter _____ **[1]**

(d) Throwing a number bigger than 2.

(d) Letter _____ **[1]**

2 Tommy goes shopping in the supermarket.
He buys some food products that are on special offer.

(a) Packets of king prawns are half price.
A packet usually costs £6.80.
Tommy buys one packet of king prawns.

Work out how much he pays.

(a) £ _____ **[2]**

(b) Pizzas cost £2.60 each.
You can buy a box of two for £4.

How much cheaper is a box of pizzas rather than two single pizzas?

(b) £ _____ **[2]**

(c) Packets of spaghetti usually cost 80p each.
The price is reduced by 25%.

Work out how much cheaper the new price is.

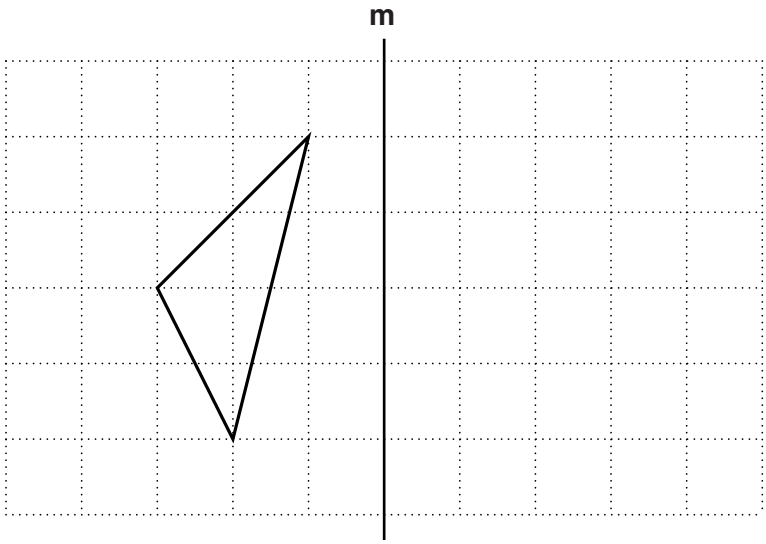
(c) _____ p **[2]**

(d) Cartons of tomato soup usually cost £1.80 each.
The price is reduced by one third.

Work out how much cheaper the new price is.

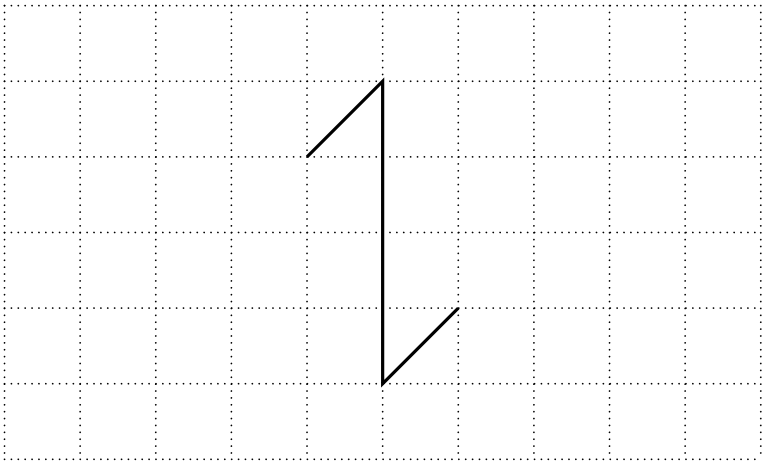
(d) £ _____ **[2]**

3 **(a)** Reflect the triangle in the line **m**.



[2]

(b) This shape has rotation symmetry of **order 2**.



Draw three more straight lines to give this shape rotation symmetry of **order 4**. **[2]**

4 This is the bus timetable from Norford to Wenton.

Norford	8:05	9:05	11:35	13:05	15:35	17:05	18:35	20:05
End Lane	8:17	9:17	11:47	13:17	15:47	17:17	18:47	20:17
Church Street	8:31	9:31		13:31		17:31		20:31
Village Hall	8:39	9:39	12:06	13:39	16:06	17:39	19:06	20:39
Queens Road	8:47	9:47		13:47		17:47		20:47
Wenton	8:51	9:51	12:15	13:51	16:15	17:51	19:15	20:51

(a) Oliver is going from End Lane to Queens Road.
He catches the bus at 9:17.

At what time should the bus get to Queens Road?

(a) _____ **[1]**

(b) Katie is travelling to Wenton.
She catches the bus from Norford at 11:35.

How long should it take her?

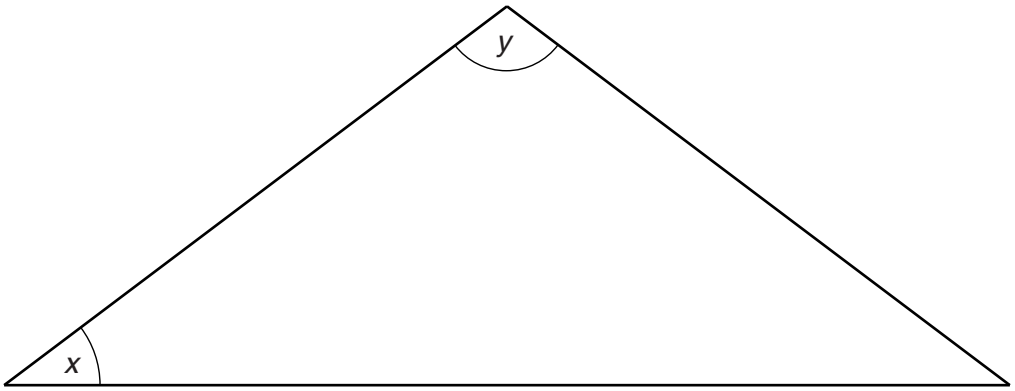
(b) _____ minutes **[2]**

(c) Charlie must be at the Village Hall by 6 o'clock in the evening.
It takes him 18 minutes to walk from his home to the bus stop at Norford.

What is the latest time he can leave home?

(c) _____ **[2]**

5 Here is a triangle.



(a) **(i)** Measure and write down angle *x*.

(a)(i) _____ ° **[1]**

(ii) Measure and write down angle *y*.

(ii) _____ ° **[1]**

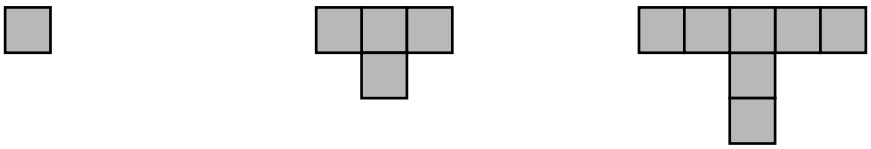
(b) Complete each of the following statements using a term from the list.

obtuse	reflex	a right angle	acute

(i) Angle *x* is _____ . **[1]**

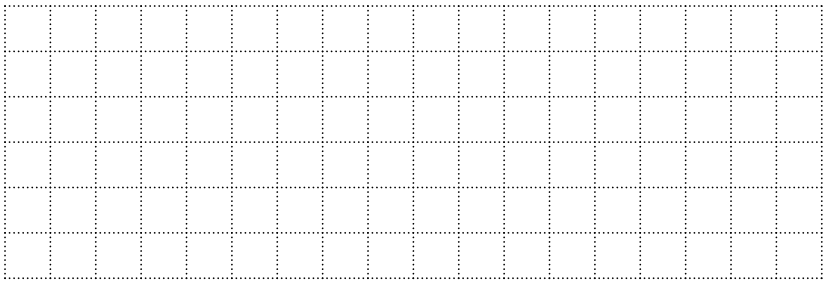
(ii) Angle *y* is _____ . **[1]**

6 Ewan is drawing a sequence of patterns.



Pattern 1 Pattern 2 Pattern 3

(a) Draw Pattern 4 on the grid below.



[1]

(b) Complete this table.

Pattern	1	2	3	4	5
Number of squares	1	4	7		

[1]

(c) How many squares will there be in

(i) Pattern 6,

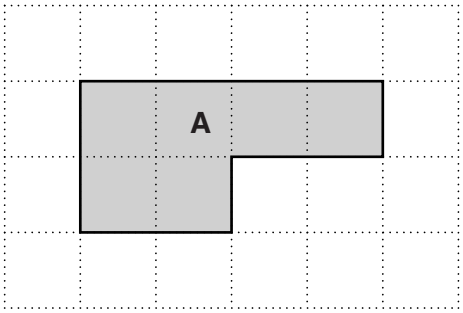
(c)(i) _____ **[1]**

(ii) Pattern 10?

(ii) _____ **[1]**

7 Shapes **A** and **B** are drawn on centimetre square grids.

(a)



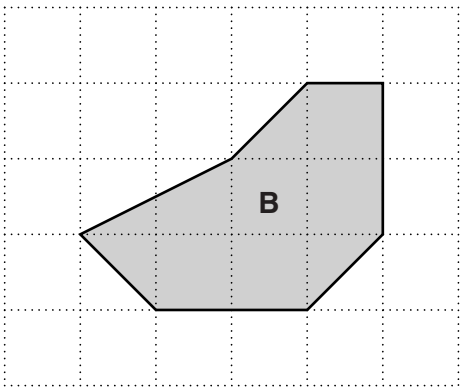
(i) Work out the area of shape **A**.

(a)(i) _____ cm^2 **[1]**

(ii) Work out the perimeter of shape **A**.

(ii) _____ cm **[1]**

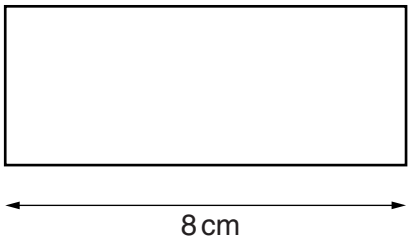
(b)



Work out the area of shape **B.**

(b) _____ cm^2 **[2]**

(c) This rectangle has a perimeter of 26 cm.



Not to scale

The length of the rectangle is 8 cm.

Work out the area of the rectangle.

(c) _____ cm^2 **[3]**

8 Jolene is cooking a meal.

(a) For the starter she is cooking fish cakes.

Recipe for Fish Cakes **Serves 4 people**	
Fish	300 grams
Potatoes	400 grams
Butter	20 grams
Bread	120 grams
Eggs	2
Salt and pepper	

Jolene needs to make fish cakes for **6 people**.

(i) How many eggs will she need?

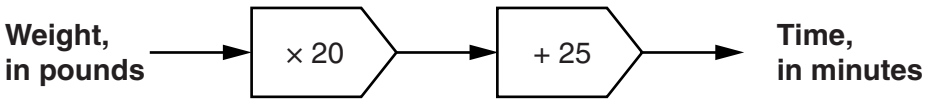
(a)(i) _____ **[1]**

(ii) How much fish will she need?

(ii) _____ g **[1]**

(b) For the main course she is roasting a chicken.

This is the rule Jolene is using to find the length of time, in minutes, needed to roast the chicken.



The chicken weighs 4 pounds.

How long will it take to roast?

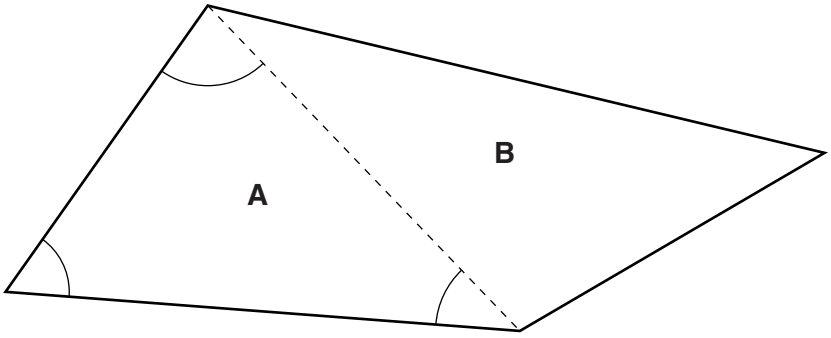
(b) _____ minutes **[2]**

(c) The recipe for her pudding says that Jolene needs half a litre of cream.

How many millilitres are there in half a litre?

(c) _____ ml **[1]**

9 This quadrilateral is split into two triangles, **A** and **B.**



(a) (i) What is the sum of the angles in triangle **A**?

(a)(i) _____ ° **[1]**

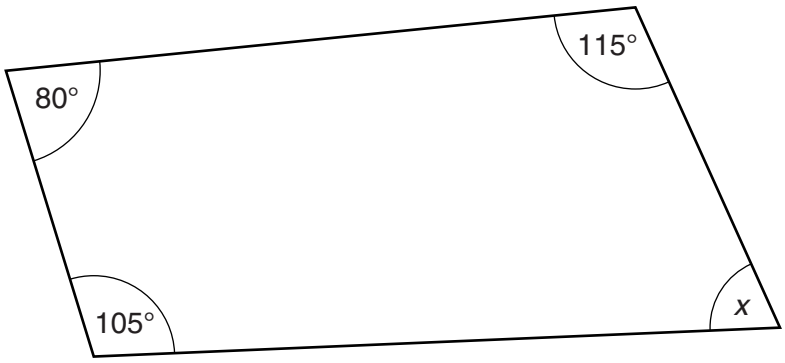
(ii) Explain why the sum of the angles in the quadrilateral is 360°.

_____

_____

_____ **[1]**

(b) Here is another quadrilateral.



Not to scale

Work out angle *x*.

(b) _____ ° **[2]**

10 **(a)** Here is a list of numbers.

3 7 8 16 33 42 70

From this list write down a number which is

(i) a multiple of 11,

(a)(i) _____ **[1]**

(ii) a cube,

(ii) _____ **[1]**

(iii) a common factor of 21 and 35.

(iii) _____ **[1]**

(b) Hannah and David are playing a game.

(i) Hannah thinks of a number.
She tells David that it is:

- less than 50
- a square
- a multiple of 2 **and** a multiple of 3.

What is the number that Hannah is thinking of?

(b)(i) _____ **[2]**

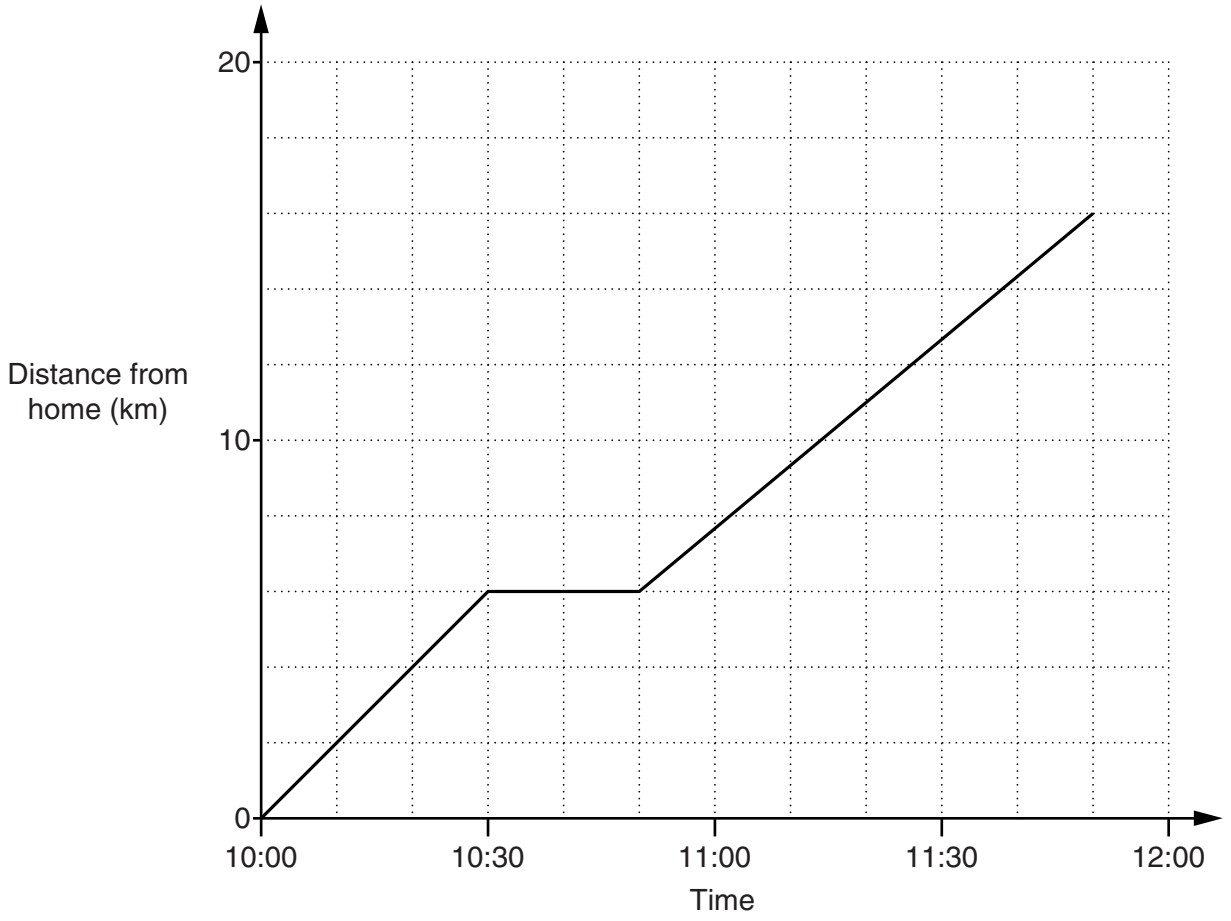
(ii) David thinks of a number.
He tells Hannah that it is:

- an odd number
- a prime number
- a factor of 52.

What is the number that David is thinking of?

(ii) _____ **[2]**

11 Jackie goes on a bike ride, starting from home.
This graph shows her journey.



(a) At what time did she stop for a rest?

(a) _____ **[1]**

(b) For how long did she stop?

(b) _____minutes **[1]**

(c) How far did she ride on her journey altogether?

(c) _____km **[1]**

12 **(a)** Work out.

(i) $^{-}3 + 7$

(a)(i) _____ **[1]**

(ii) $^{-}5 - {}^{-}2$

(ii) _____ **[1]**

(b) **(i)** Siobhan is putting her drill bits in order of size.
The diameters, measured in inches, are

$$\frac{1}{4} \qquad \frac{3}{8} \qquad \frac{5}{16} \qquad \frac{7}{32}$$

Write these diameters in order of size, smallest first.
Show your working.

(b)(i) _____ _____ _____ _____ **[2]**
smallest

(ii) Siobhan is drilling a hole.

She measures the depth of the hole and finds that it is $1\frac{1}{2}$ inches.

Siobhan needs the hole to be $3\frac{1}{4}$ inches deep.

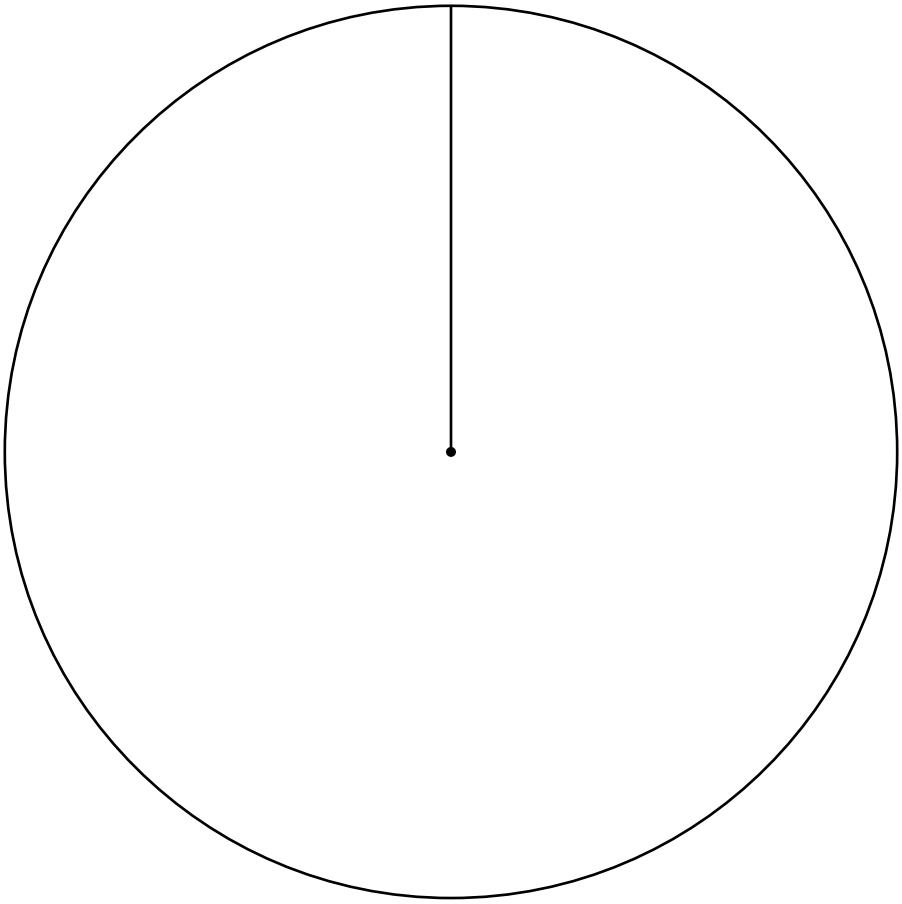
How much deeper does she need to drill?

(ii) _____ inches **[2]**

13 36 patients were asked their opinion of the local health centre.
The results are recorded in this table.

Excellent	7
Good	18
Satisfactory	8
Poor	3

Draw and label a pie chart to represent this data in the circle below.



[4]

14 (a) The ages of 21 members of a tennis club are shown in this stem and leaf diagram.

1	7 9
2	2 3 5 7 9
3	1 4 6 7 8
4	2 2 5 8
5	3 4 8
6	4 7

Key: 6 | 4 represents 64

(i) Write down the age of the youngest member of the club.

(a)(i) _____ **[1]**

(ii) Work out the range of the ages of members of the club.

(ii) _____ **[1]**

(iii) Work out the median of the ages of the members of the club.

(iii) _____ **[1]**

(b) Henry and Natasha have 5 children.
The two eldest are twins, all the others are different ages.
The median of their ages is 8 years and the range is 4 years.
The youngest child is 6 years old.

What are the ages of the four older children?

(b) 6 , _____ , _____ , _____ , _____ **[3]**

15 (a) A plumber uses the following formula to work out the charge for a job.

$C = d + 20h$

C is the charge in pounds.
d is the distance in miles to travel to the job.
h is the number of hours worked.

The plumber travels 13 miles to a job and works for 3 hours.

Work out how much he charges.

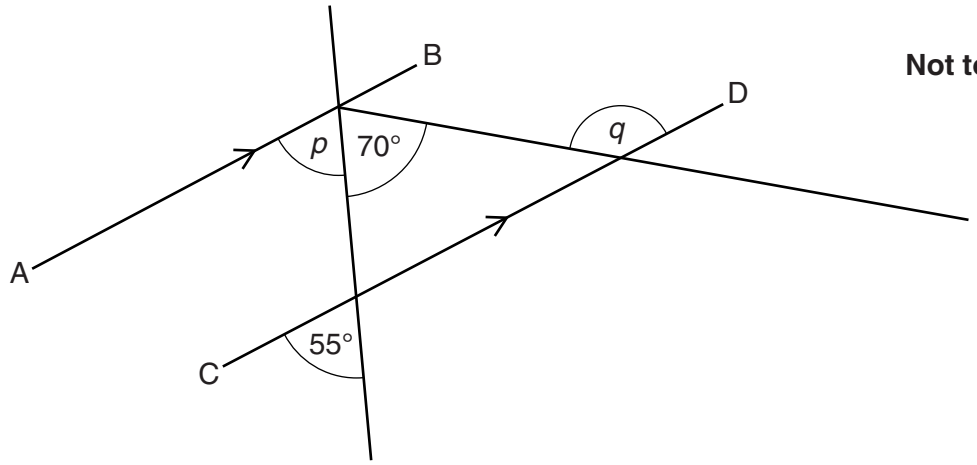
(a) £ _____ **[2]**

(b) Rearrange this formula to make h the subject.

$C = d + 20h$

(b) $h =$ _____ **[2]**

16 (a) In the diagram below, AB is parallel to CD.



Not to scale

Work out angle *p* and angle *q*.
Give a reason for each answer.

(i) $p =$ _____ ° because _____

_____ **[2]**

(ii) $q =$ _____ ° because _____

_____ **[2]**

(b) The exterior angle of a regular polygon is 40°.

How many sides does the polygon have?

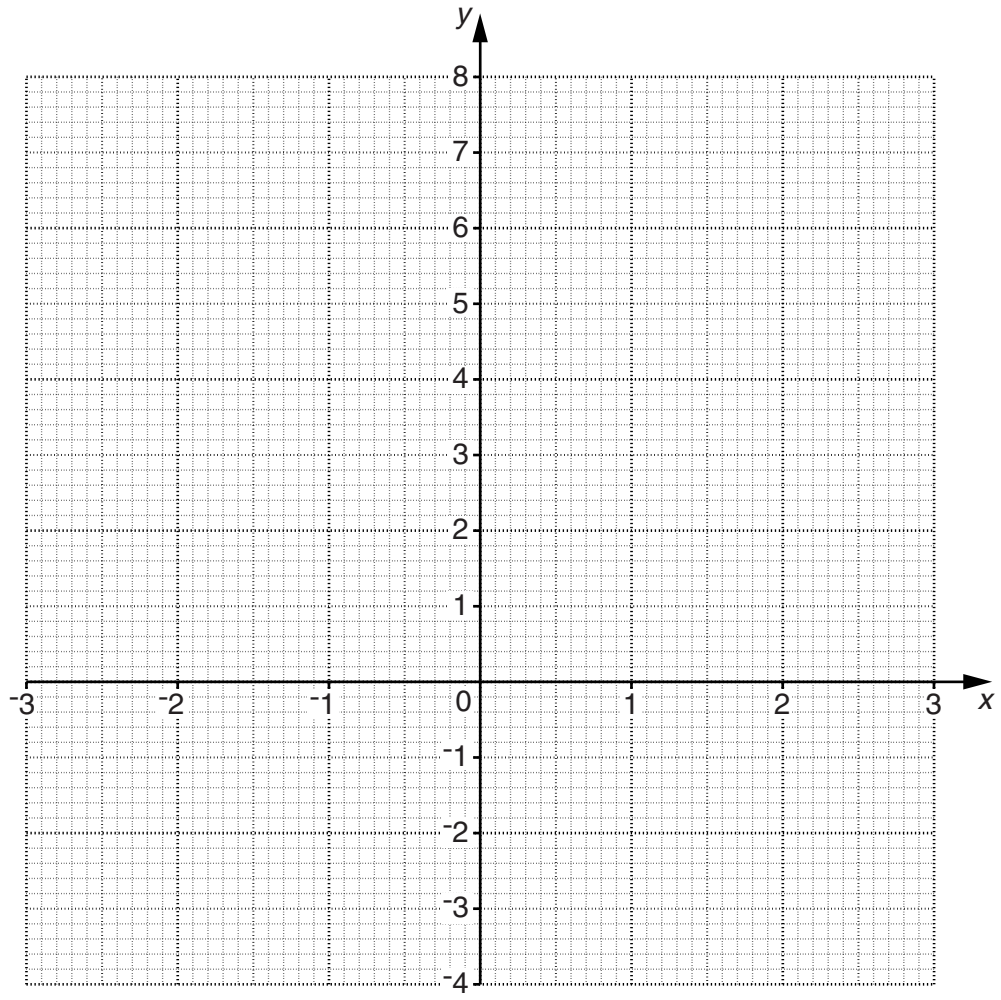
(b) _____ **[2]**

17 **(a)** Complete the table for $y = x^2 - 2$.

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

[2]

(b) Draw the graph of $y = x^2 - 2$.

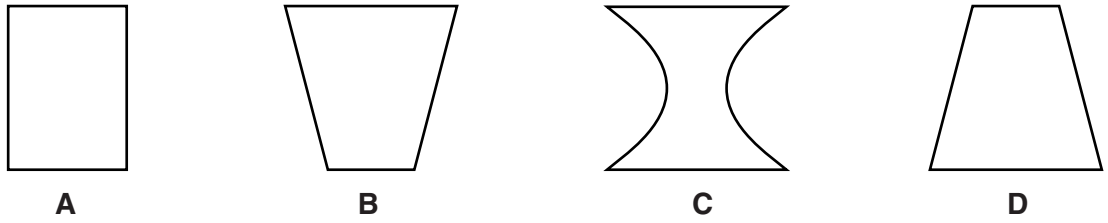


[2]

(c) Use your graph to solve the equation $x^2 - 2 = 0$.

(c) $x =$ _____ and $x =$ _____ **[2]**

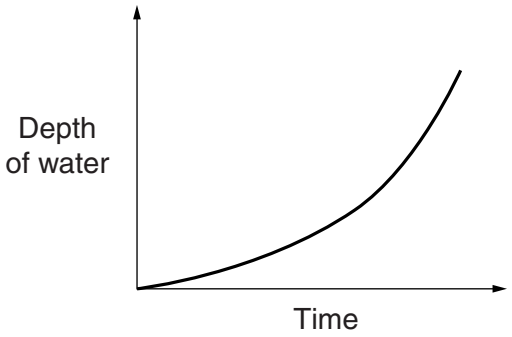
18 Here are some vases.



The vases are filled with water at a constant rate.
The graphs below show the depth of water as a vase is filled to the top.

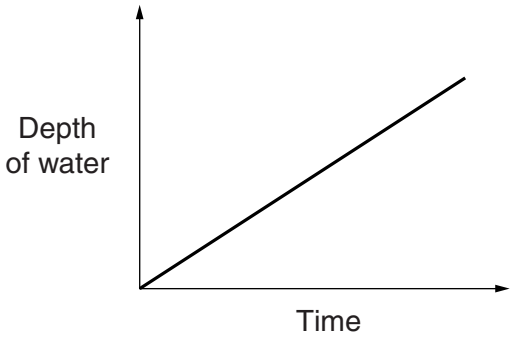
Match each of these graphs with the letter from the vase.

(a)



(a) Letter _____ **[1]**

(b)



(b) Letter _____ **[1]**

19 **(a)** Ivan pays £120 rent each week.
He earns £300 each week.

Work out his rent as a percentage of his earnings.

(a) _____ % **[2]**

(b) Ivan joins a gym.
Membership usually costs £34.50 per month.
He gets a discount of 20% for the first six months.

Work out how much he pays altogether for his first **six months**' membership.

(b) £ _____ **[4]**

TURN OVER FOR QUESTION 20

20* Each week Mike drives 195 miles travelling to and from work.

Average fuel consumption for Mike's car: 51.4 miles per gallon
Cost of 1 litre of fuel: 138.9p
1 gallon = 4.55 litres

A weekly train pass for Mike's journey costs £31.50.

Mike says:

I will save money if I travel to and from work by train.

Is Mike correct?
Use estimation to justify your answer.

_____

_____

_____

_____

_____

_____

_____ **[5]**