

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



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**

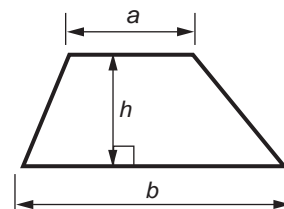


**No calculator can be used for this paper**

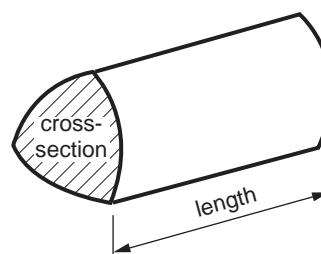
This paper has been pre modified for carrier language

## Formulae Sheet: Foundation Tier

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



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



**PLEASE DO NOT WRITE ON THIS PAGE**

**Copyright Information**

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website ([www.ocr.org.uk](http://www.ocr.org.uk)) after the live examination series.

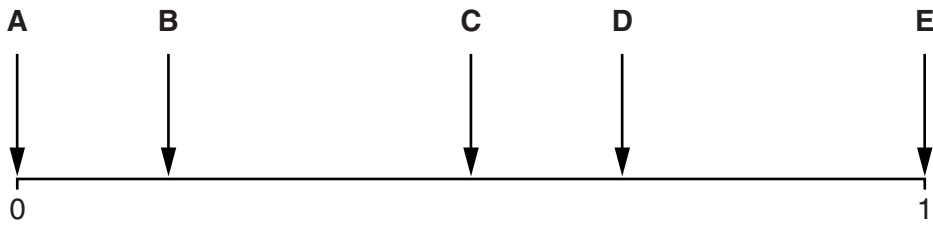
If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact the Copyright Team, First Floor, 9 Hills Road, Cambridge CB2 1GE.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

## 3

- 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]

4

- 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]

5

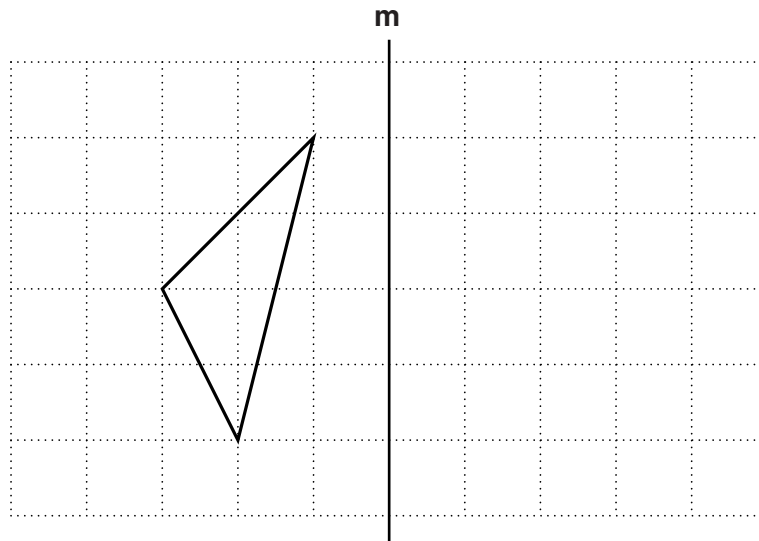
- (d) Cartons of tomato soup usually cost £1.80 each.  
The price is reduced by one third.

Work out how much cheaper the new price is.

(d) £ \_\_\_\_\_ [2]

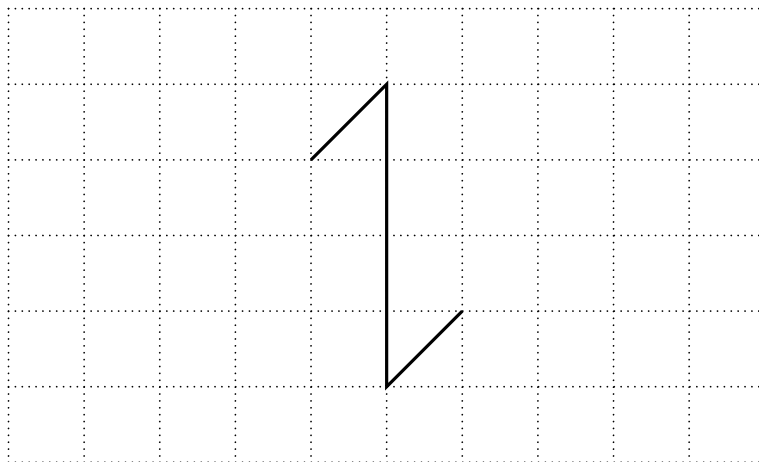
6

- 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]

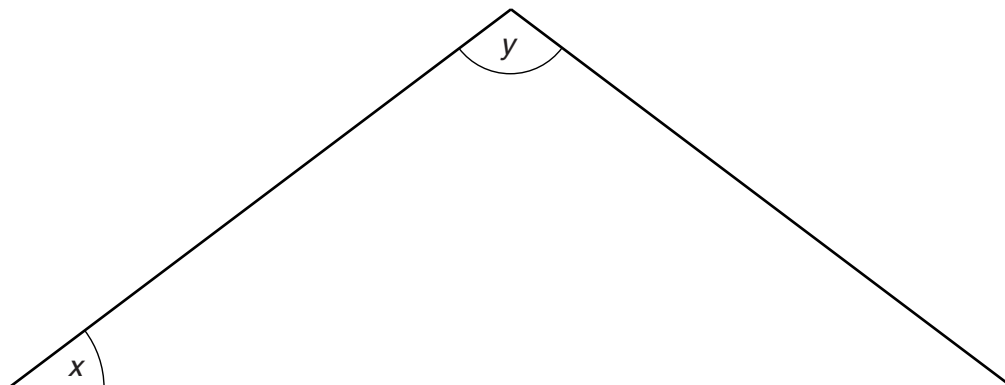
- (c) Charlie must be at the Village Hall by 6 o'clock in the evening.  
It takes him 18 minutes to walk from his home to the bus stop at Norford.

What is the latest time he can leave home?

(c) \_\_\_\_\_ [2]

8

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]

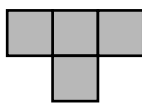
(ii) Angle  $y$  is \_\_\_\_\_ . [1]



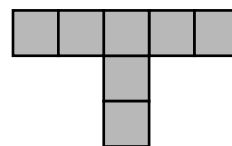
6 Ewan is drawing a sequence of patterns.



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]

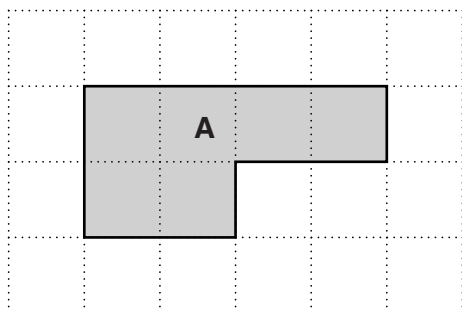
(ii) Pattern 10?

(ii) \_\_\_\_\_ [1]

10

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

(a)



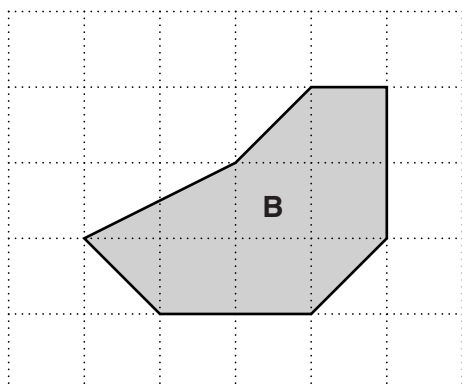
(i) Work out the area of shape **A**.

(a)(i) \_\_\_\_\_ cm<sup>2</sup> [1]

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

(ii) \_\_\_\_\_ cm [1]

(b)

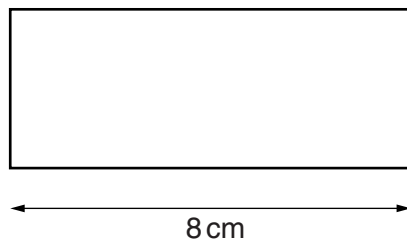


Work out the area of shape **B**.

(b) \_\_\_\_\_ cm<sup>2</sup> [2]

11

(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<sup>2</sup> [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?

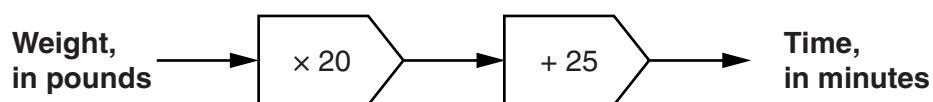
(a)(i) \_\_\_\_\_ [1]

(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]

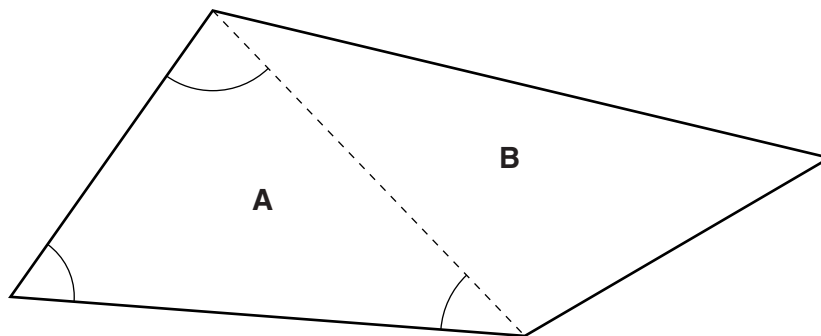
(c) The recipe for her pudding says that Jolene needs half a litre of cream.

How many millilitres are there in half a litre?

(c) \_\_\_\_\_ ml [1]

13

- 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  $360^\circ$ .

---



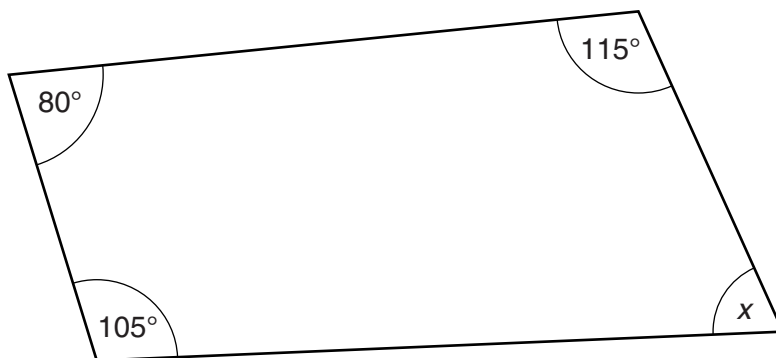
---



---

[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:

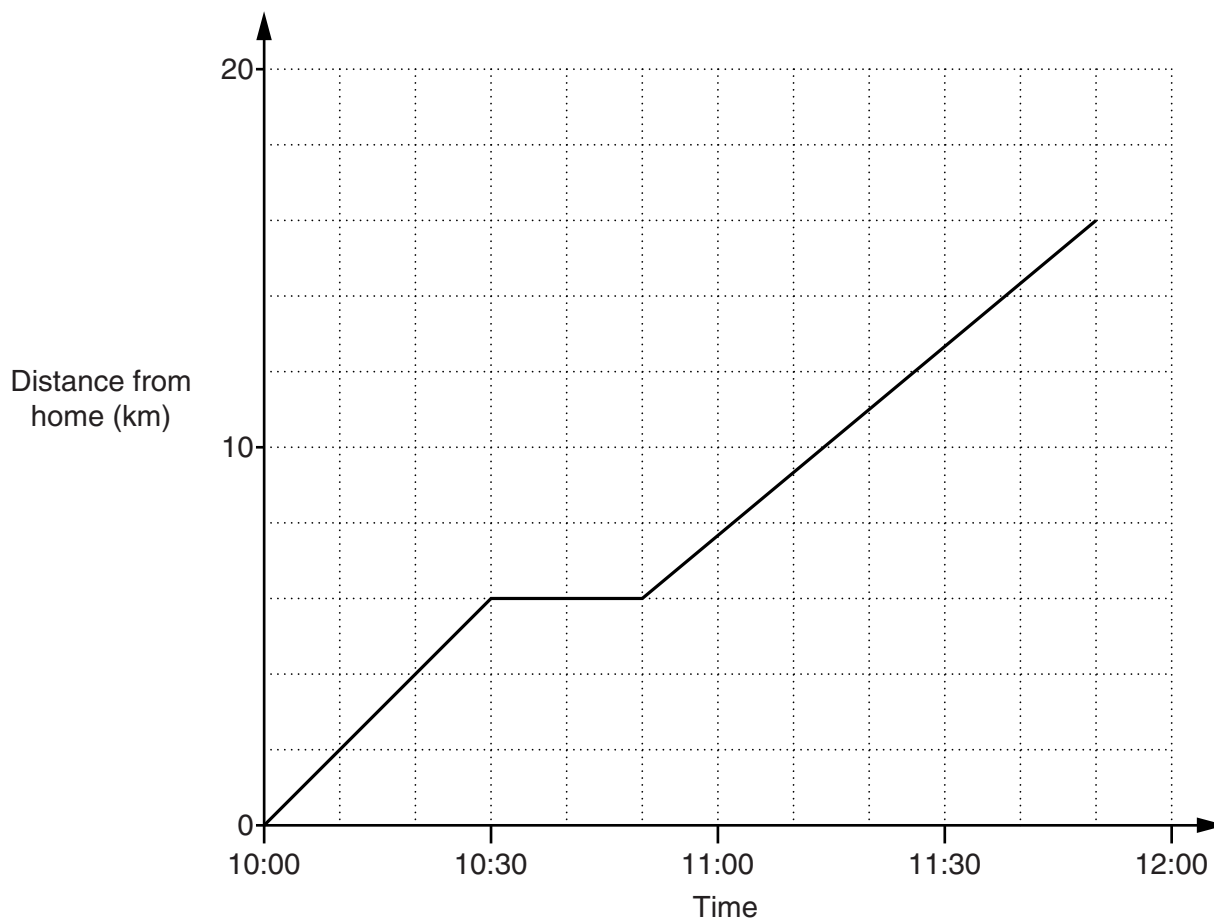
- an odd number
- a prime number
- a factor of 52.

What is the number that David is thinking of?

(ii) \_\_\_\_\_ [2]

15

- 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]  
Turn over

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

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

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]

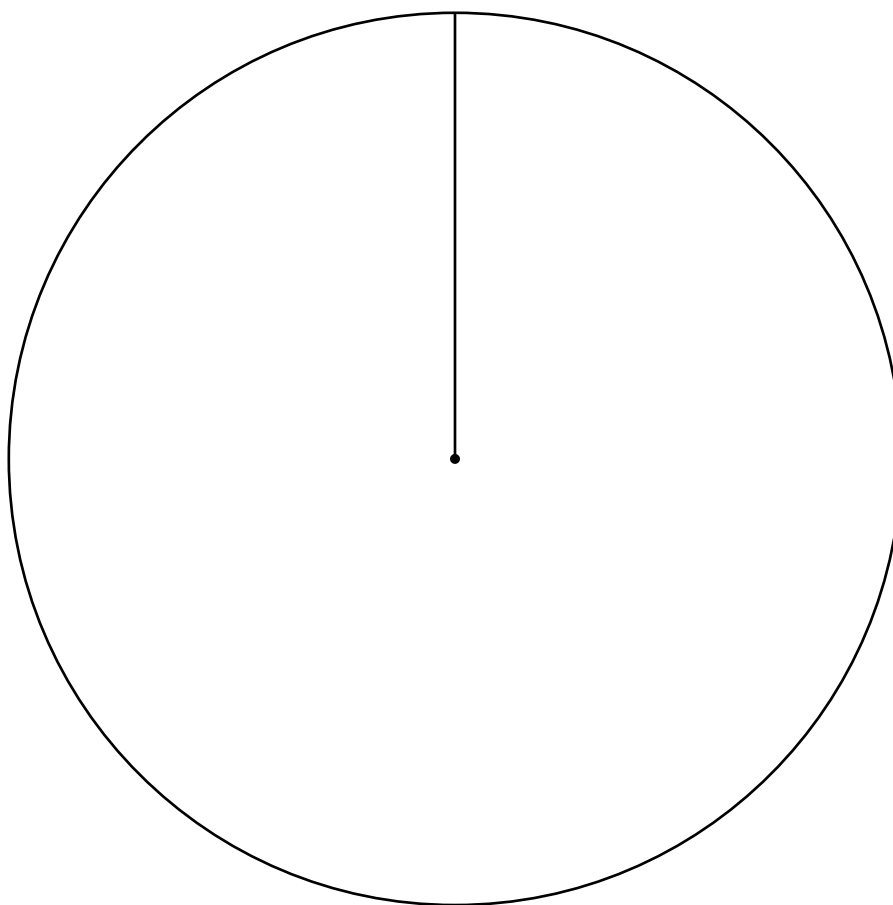


17

- 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	<b>Key:</b> 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]

## 19

- 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]

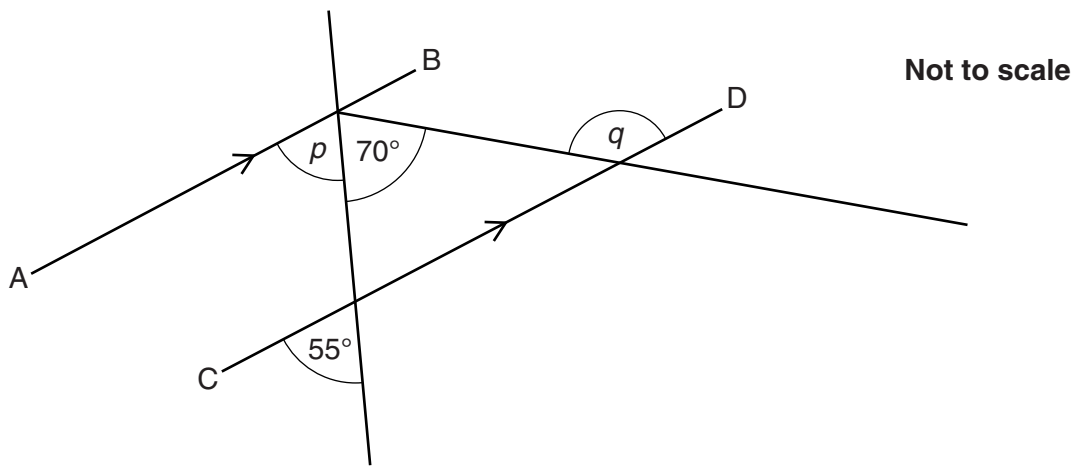
- (b) Rearrange this formula to make  $h$  the subject.

$$C = d + 20h$$

(b)  $h =$  \_\_\_\_\_ [2]

20

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



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

(i)  $p = \underline{\hspace{2cm}}^\circ$  because  $\underline{\hspace{10cm}}$   
 $\underline{\hspace{10cm}}$  [2]

(ii)  $q = \underline{\hspace{2cm}}^\circ$  because  $\underline{\hspace{10cm}}$   
 $\underline{\hspace{10cm}}$  [2]

- (b) The exterior angle of a regular polygon is  $40^\circ$ .

How many sides does the polygon have?

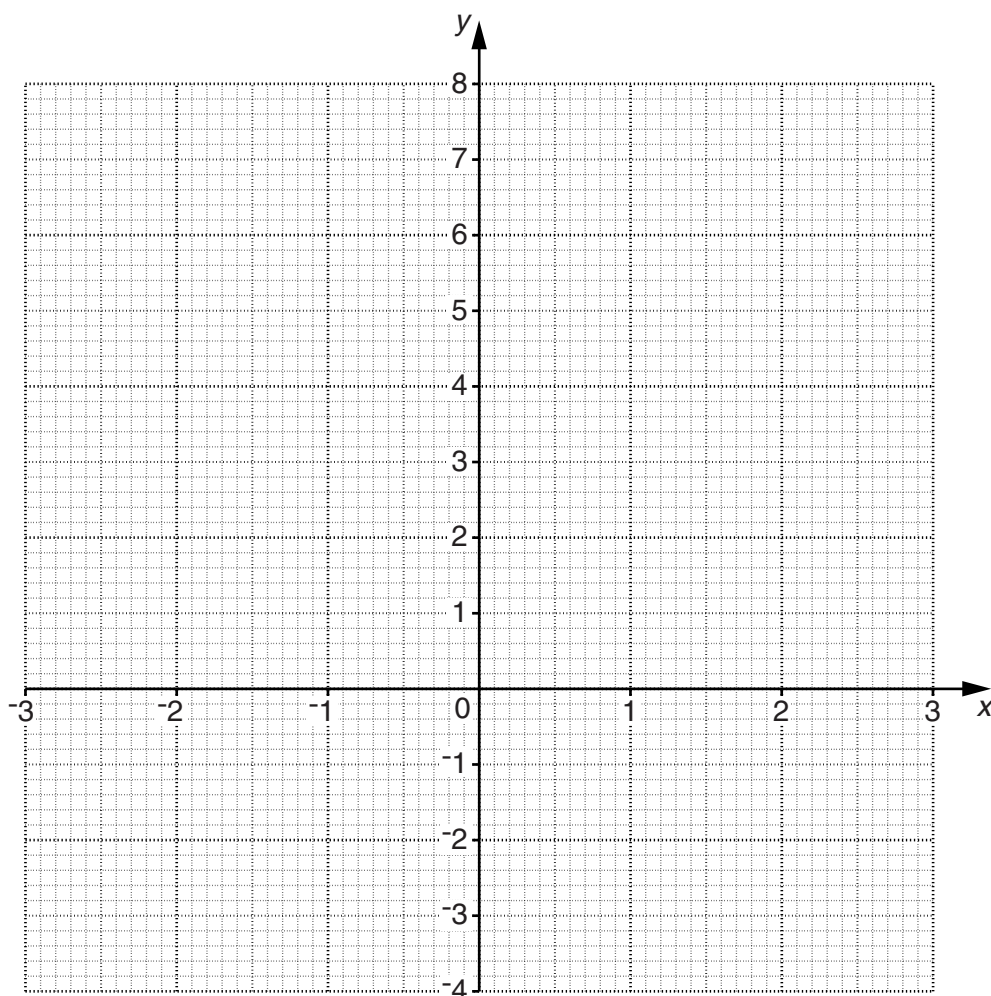
(b)  $\underline{\hspace{10cm}}$  [2]

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]

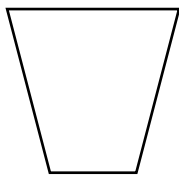
(c) Use your graph to solve the equation  $x^2 - 2 = 0$ .

(c)  $x =$  \_\_\_\_\_ and  $x =$  \_\_\_\_\_ [2]

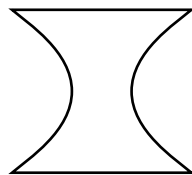
18 Here are some vases.



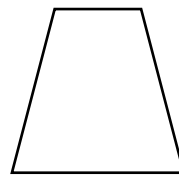
A



B



C

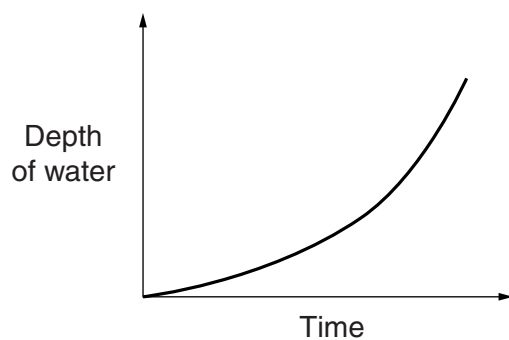


D

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.

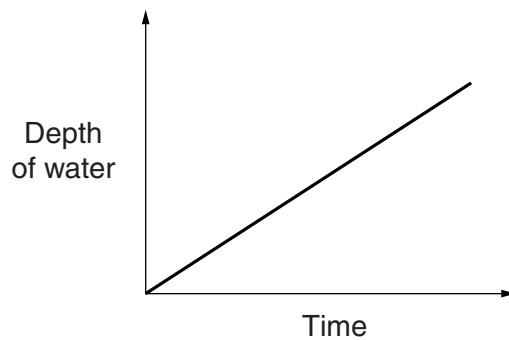
Match each of these graphs with the letter from the vase.

(a)



(a) Letter \_\_\_\_\_ [1]

(b)



(b) Letter \_\_\_\_\_ [1]

23

- 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**

## 24

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]