OCR

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Monday 9 June 2014 – Morning

GCSE MATHEMATICS B

J567/01 Paper 1 (Foundation Tier)

3058606120

Candidates answer on the Question Paper.

OCR supplied materials:
None

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

Duration: 1 hour 30 minutes

J567701

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

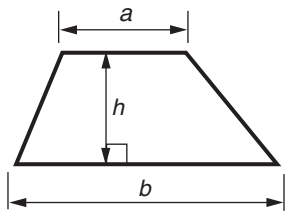
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- The quality of written communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is **100**.
- This document consists of **20** pages. Any blank pages are indicated.

WARNING

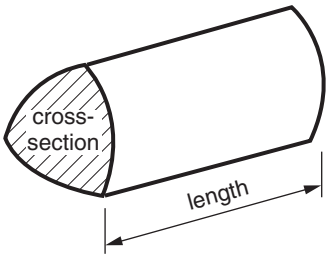
No calculator can be used for this paper

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

Answer **all** the questions.

1 Choose a value from each list to complete the following sentences.

(a) 190 cm 1900 g 190 g 19 kg

The weight of an apple is about ..... **[1]**

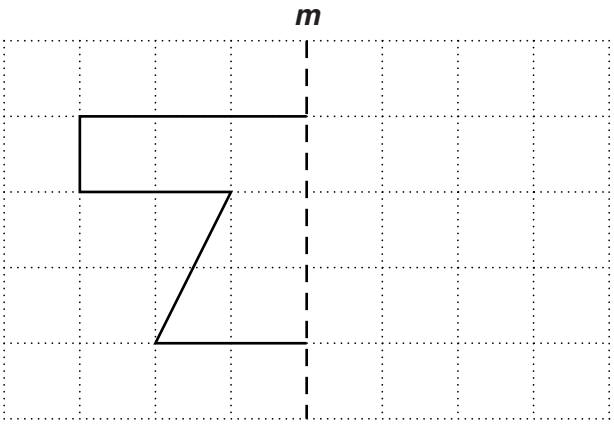
(b) 4.5 km 450 cm 45 m 45 ml

The length of a car is about ..... **[1]**

(c) 50 ml 50 cm 5 litres 5 ml

A teaspoon holds about ..... **[1]**

2 Reflect the shape in the line ***m***.



[2]

3 Ellie (E) is going to a football match with three friends, Alec (A), Karen (K) and Bev (B).

(a) They sit next to each other in a row of four seats.
Ellie has to sit in seat 1 or seat 4.

Complete the table to show all twelve possible orders in which they could sit.
One has been done for you.

Seat 1	Seat 2	Seat 3	Seat 4
E	A	K	B

[2]

(b) There were 78 614 people at the match.

Write this number correct to

(i) the nearest ten,

(b)(i) ..... **[1]**

(ii) two significant figures.

(ii) ..... **[1]**

4 **(a)** Work out.

(i) 627 + 304

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

(ii) 47 × 100

(ii) ..... **[1]**

(iii) 9.6 ÷ 4

(iii) ..... **[2]**

(iv) 35% of 80

(iv) ..... **[2]**

(b) Write down

(i) 75% as a fraction,

(b)(i) ..... **[1]**

(ii) $\frac{3}{5}$ as a decimal.

(ii) ..... **[2]**

5 **(a)** Here are the first four terms of a sequence.

5 11 17 23

(i) Write down the next term of the sequence.

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

(ii) Explain how you worked out your answer.

..... **[1]**

(b) Here is the rule to find the next term of another sequence.

multiply the previous term by 4 then subtract 3

The first term of the sequence is 10.

Find the second term.

(b) ..... **[2]**

6 Write these numbers in order of size, smallest first.

4.02 4.2 4.042 4.024 4.202

.... **[2]**
smallest

7 Jamilla records the favourite sweet of 40 children.

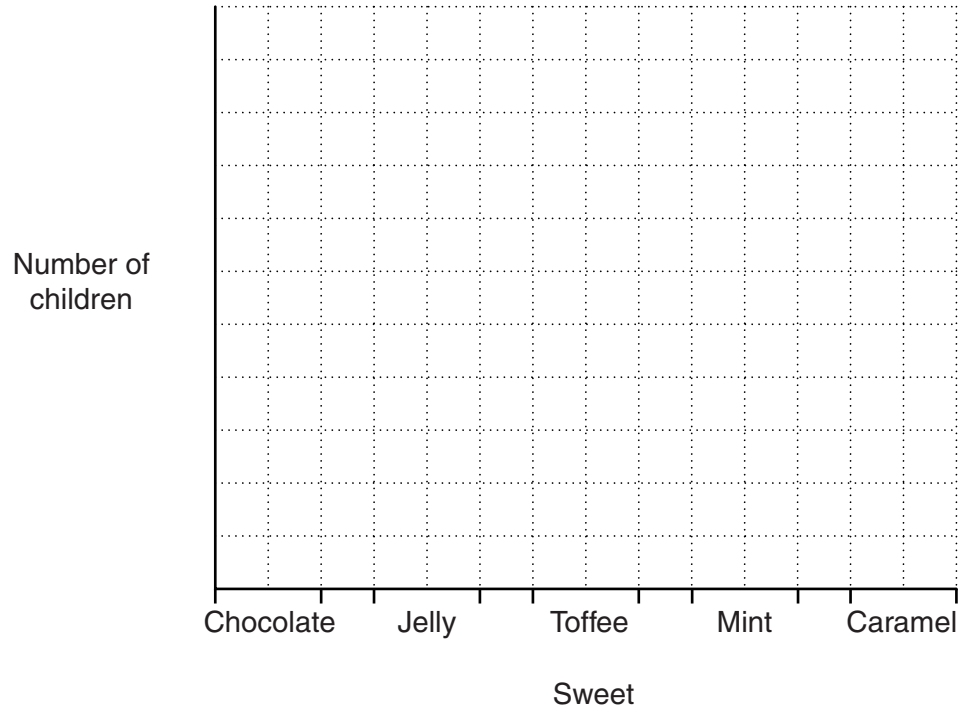
Sweet	Number of children
Chocolate	7
Jelly	13
Toffee	
Mint	2
Caramel	12

(a) Complete her table. **[1]**

(b) Which sweet is the mode?

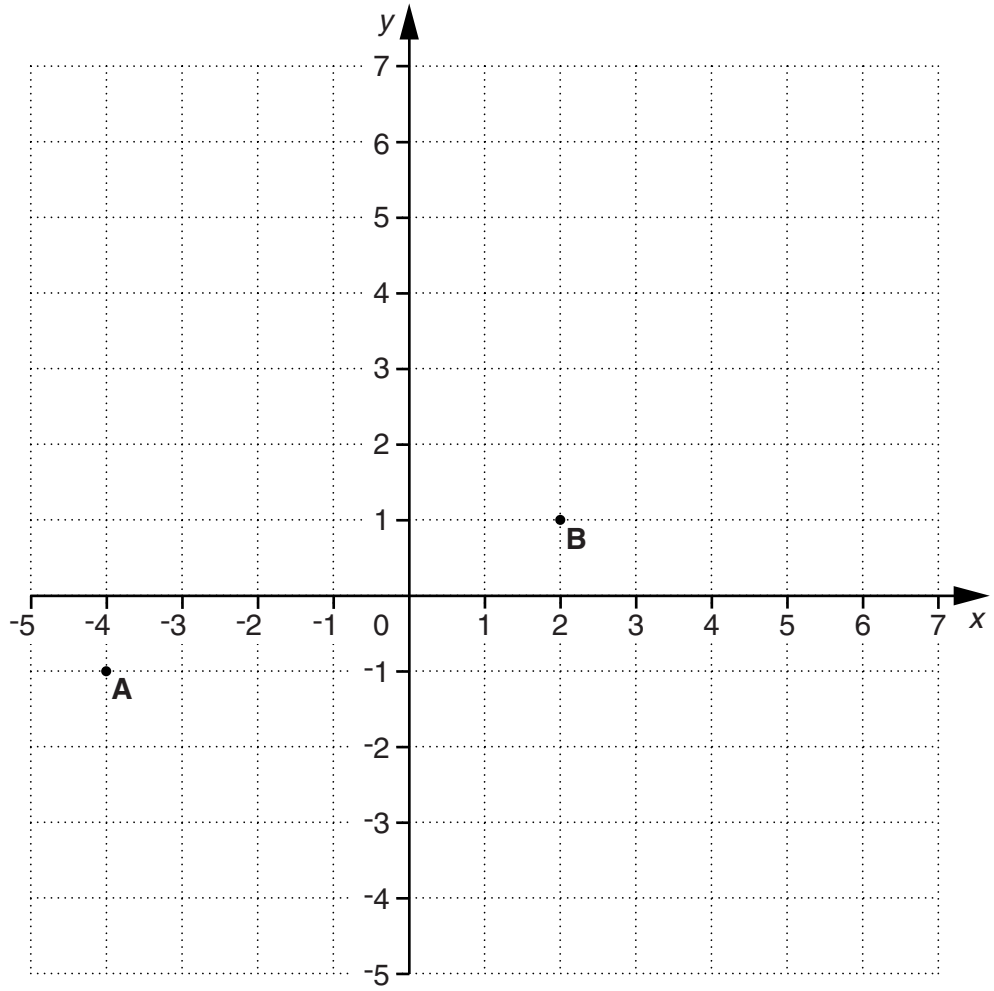
(b) ..... **[1]**

(c) Draw a bar chart to represent this data.



[3]

8 **(a)** This is a coordinate grid.



(i) Write down the coordinates of point **A**.

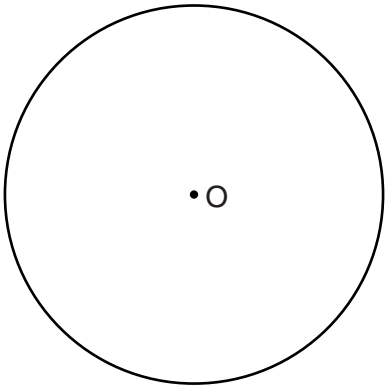
(a)(i) (..... , ...) **[1]**

(ii) Plot point **C** at (-4, 3). **[1]**

(iii) What type of triangle is **ABC**?

(iii) ..... **[1]**

(b) On this circle, centre O, draw a radius. **[1]**



9 **(a)** Simplify the following expressions.

(i) $a + 4a - 2a$

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

(ii) $3c - 5d + 2c - 2d$

(ii) ..... **[2]**

(iii) $b^5 \times b^3$

(iii) ..... **[1]**

(b) Solve.

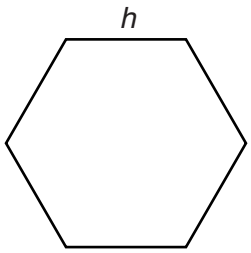
(i) $3x = 36$

(b)(i) $x =$ ..... **[1]**

(ii) $13 = 4 + 6x$

(ii) $x =$ ..... **[2]**

(c) This is a regular hexagon, with side length h.



Write down a formula for the perimeter, P, of this shape.

(c) ..... **[2]**

10 Mr and Mrs Brown are visiting the zoo with their 4 children, all aged under 16.
The children's 2 grandparents, aged 62, go with them.

(a)* The prices of tickets for the zoo are shown below.

Ticket Prices	
Adult	£16.50
Child (under 16)	£12.50
Over 60s	£13

Group Ticket
(2 adults and 2 children)

£53

Work out the cheapest price for these 8 people to enter the zoo.
You must show all your working clearly.

The cheapest way .....

.....which costs £ ..... **[5]**

(b) The zoo has 8 elephants.
The ages of the elephants are

18 2 7 44 57 36 23 31

(i) Work out the range of the elephants' ages.

(b)(i) ..... **[1]**

(ii) Work out the median age of the elephants.

(ii) ..... **[2]**

(c) One of the elephants is six metres and four centimetres long.

Write down this length in metres.

(c) ..... m **[1]**

(d) The lemurs have a rectangular enclosure 11 metres long and 7 metres wide.

Work out

(i) the perimeter of the enclosure,

(d)(i) ..... m **[2]**

(ii) the area of the enclosure.
Give the units of your answer.

(ii) ..... **[3]**

(e) The zoo is open from 10 am to 6 pm.

How many hours is the zoo open?

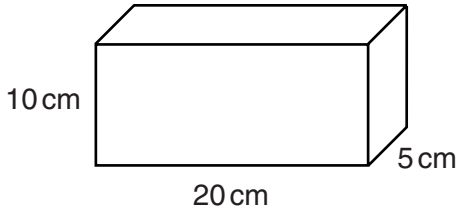
(e) ..... **[1]**

(f) The family arrived at the zoo at 10 20 and stayed for $6\frac{1}{4}$ hours.

At what time did they leave the zoo?

(f) ..... **[1]**

11 The diagram shows a box in the shape of a cuboid.

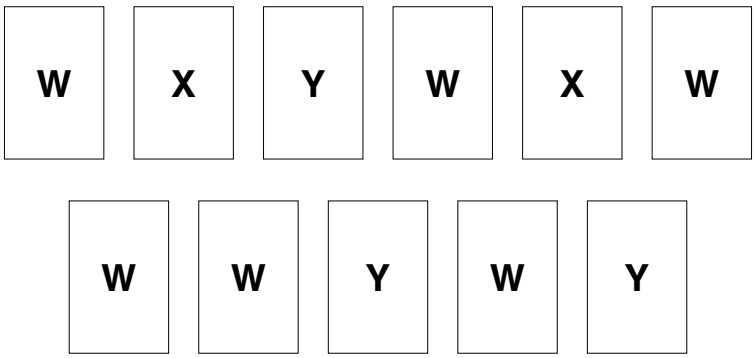


Nikki has some of these boxes.
Nikki packs her boxes into a crate in the shape of a cuboid.
The crate has length 2 m, height 50 cm and width 40 cm.

Work out how many of her boxes Nikki can pack into the crate.

..... **[4]**

12 Emilea has some cards with letters on them.



Emilea takes a card without looking.

(a) What is the probability the card has a W on it?

(a) ..... **[1]**

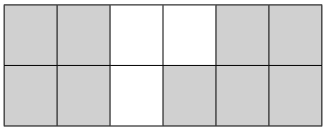
(b) What is the probability the card has either an X or a Y on it?

(b) ..... **[1]**

(c) What is the probability the card has a Z on it?

(c) ..... **[1]**

13 **(a)** What fraction of this shape is shaded?
Give your answer in its simplest form.



(a) ..... **[2]**

(b) Work out.

$$\frac{3}{8} + \frac{1}{2}$$

(b) ..... **[2]**

(c) Write $\frac{23}{6}$ as a mixed number.

(c) ..... **[1]**

(d) Write $1\frac{5}{8}$ as an improper fraction.

(d) ..... **[1]**

(e) Work out.

$$5\frac{3}{5} - 2\frac{1}{6}$$

(e) ..... **[3]**

14 Students at a sports college choose activities for games.

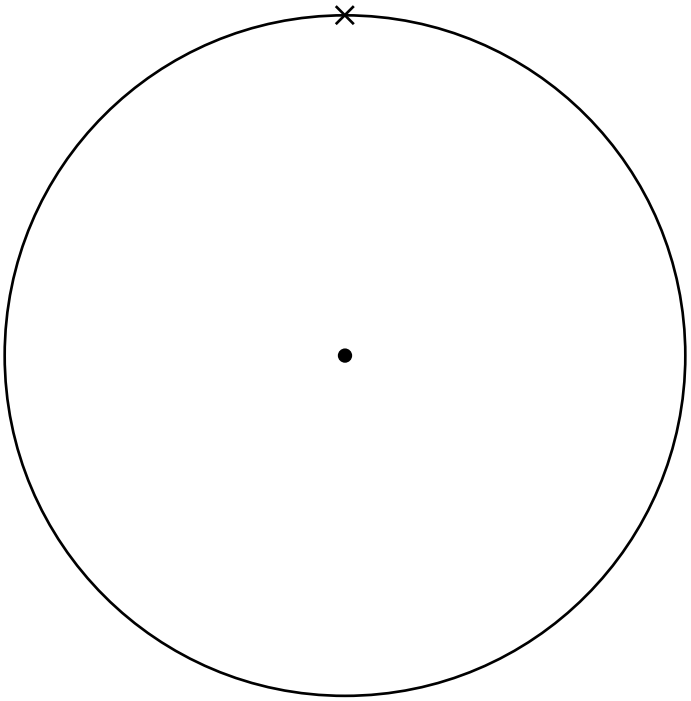
In Year 7 they chose between rounders and athletics in the ratio 1: 4.
There are 60 students in Year 7.

Work out how many chose athletics.

..... **[2]**

15 On the circle below, draw accurately a regular octagon.
The vertices of the octagon must be on the circumference of the circle.

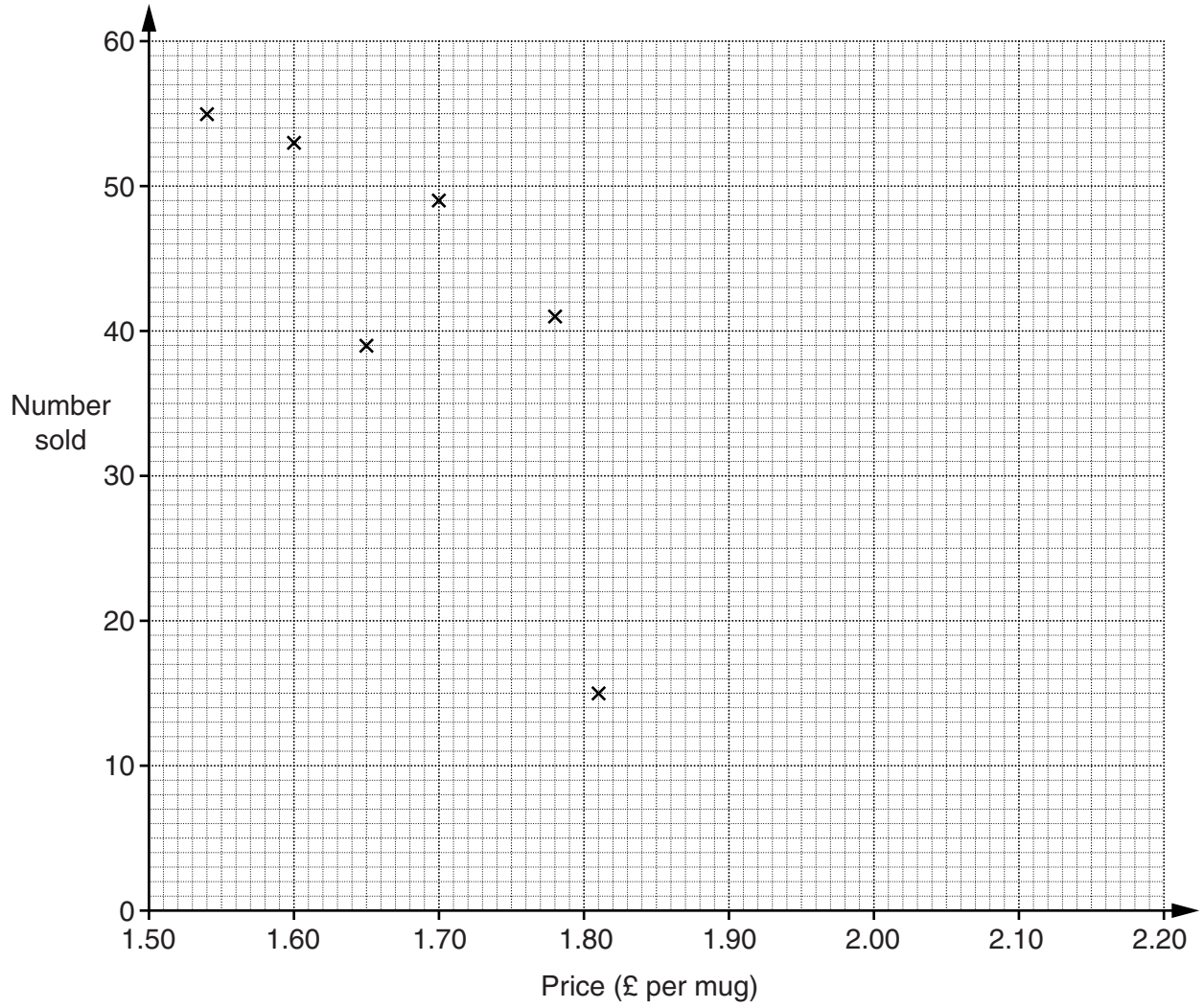
One vertex has been marked for you.



[2]

16 Chico sells coffee in his café.
He changes the price of a mug of coffee every day.
The table shows the number of mugs of coffee he sells and the price on each of ten days.

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
Price (£ per mug)	1.54	1.60	1.65	1.70	1.78	1.81	1.88	2.05	2.14	2.20
Number sold	55	53	39	49	41	15	40	25	28	21



(a) The first six points have been plotted on the scatter diagram.

Complete the scatter diagram by plotting the last four points. **[2]**

(b) Describe the correlation shown.

(b) ..... **[1]**

(c) Draw a line of best fit on the diagram. **[1]**

(d) The café closed early one day.

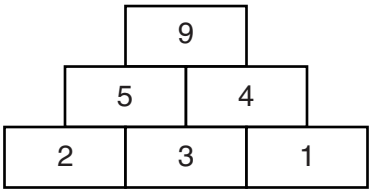
Put a ring around the cross that shows this day. **[1]**

(e) One day Chico charges £2.00 per mug of coffee.

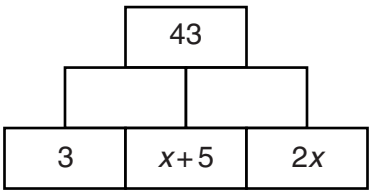
Use the diagram to estimate how much money **in total** Chico takes this day on coffee.

(e) £ ..... **[2]**

17 Here is a number pyramid.
The value in each cell is found by adding the values in the two cells beneath it.

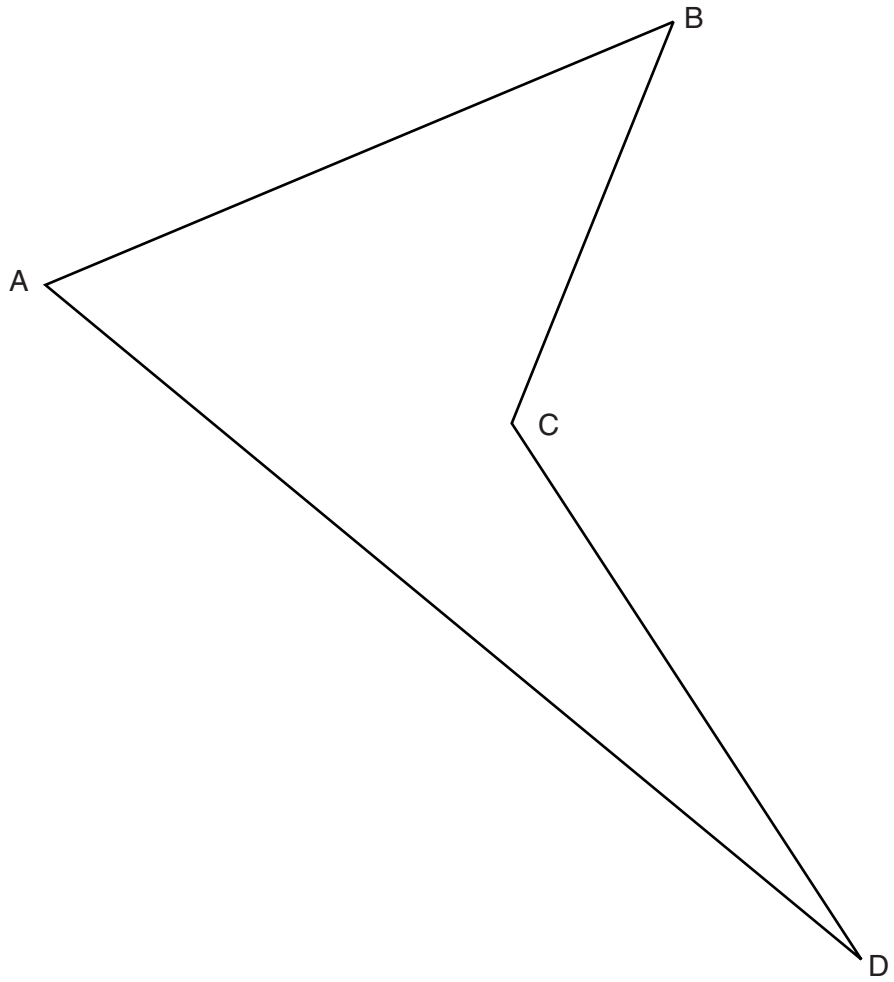


In the number pyramid below, find the value of x.
Show all your working.



$x =$ ..... **[4]**

18 The diagram shows a park ABCD.



Scale: 1 cm represents 100 m

The council want to put a shed inside the park and it must be

- nearer to AB than AD
- less than 400 m from C.

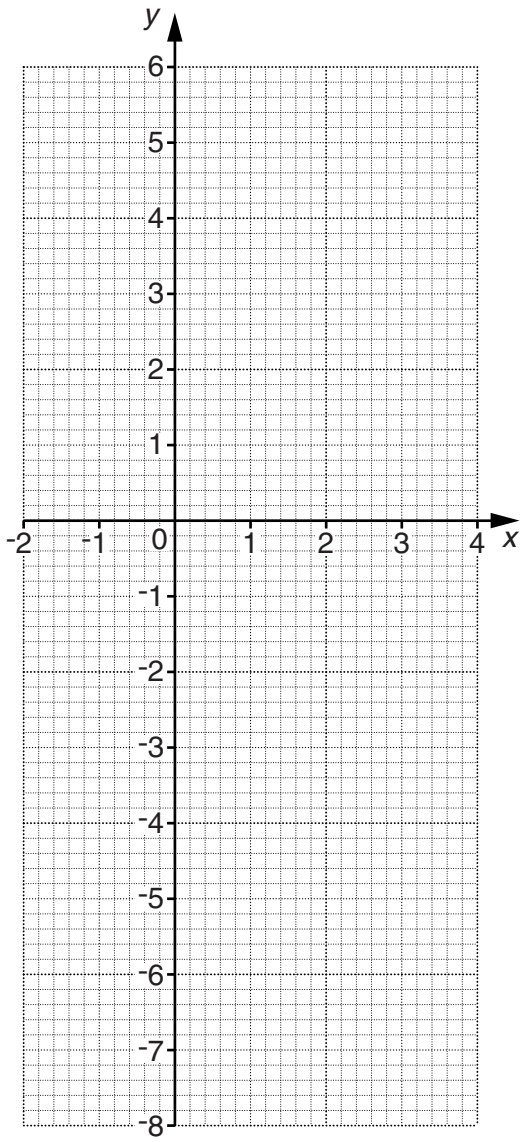
Shade the region where they can put the shed.
You must show all your construction arcs. **[4]**

19 **(a)** Complete this table for $y = 2x - 3$.

x	-2	-1	0	1	2	3	4
y	-7	-5		-1			5

[1]

(b) Draw the graph of $y = 2x - 3$ for values of x from -2 to 4.



[2]

TURN OVER FOR QUESTION 20

20 Winnie drives 184 miles.
She drives 60 miles on ordinary roads and the rest on a motorway.

She completes the journey in $3\frac{1}{2}$ hours.
She drives at an average speed of 40 mph on ordinary roads.

Work out her average speed on the motorway.

..... mph **[4]**

END OF QUESTION PAPER