OCR RECOGNISING ACHIEVEMENT

F

Monday 4 March 2013 – Morning

GCSE MATHEMATICS B

J567/02 Paper 2 (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Geometrical instruments
- Tracing paper (optional)
- Scientific or graphical calculator

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

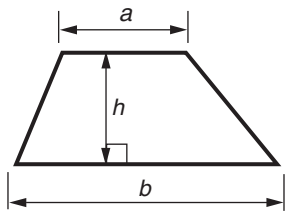
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is **100**.
- This document consists of **24** pages. Any blank pages are indicated.

You are permitted to use a calculator for this paper

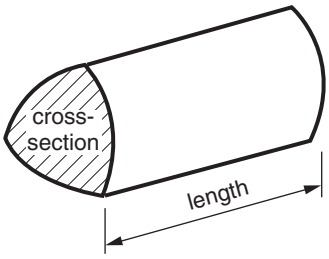
This paper has been pre modified for carrier language

Formulae Sheet: Foundation Tier

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

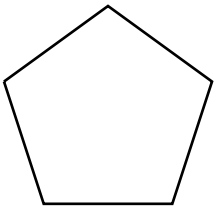


Volume of prism = (area of cross-section) × length



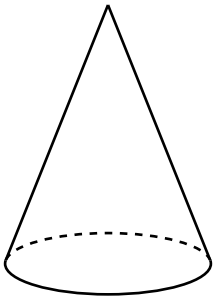
PLEASE DO NOT WRITE ON THIS PAGE

1 **(a)** Write down the mathematical name of this shape.



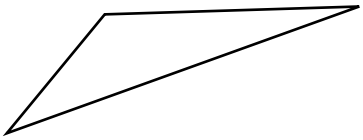
(a) _____ **[1]**

(b) Write down the mathematical name of this solid.



(b) _____ **[1]**

(c) Write down the mathematical name of this type of triangle.



(c) _____ **[1]**

2

certain	impossible	likely
unlikely	evens	

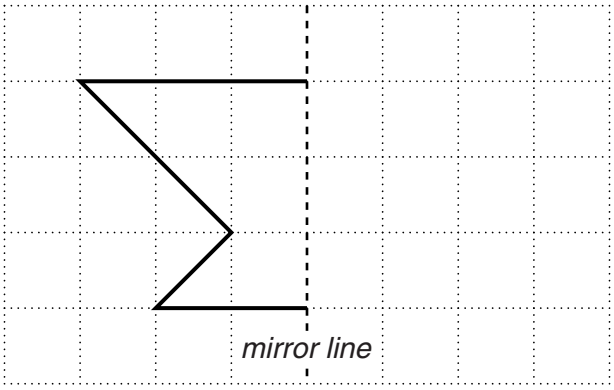
Choose a word from the box above to complete each of the following sentences.

When a normal fair dice is rolled it is

(a) _____ that it will show an odd number. **[1]**

(b) _____ that it will show a number less than 7. **[1]**

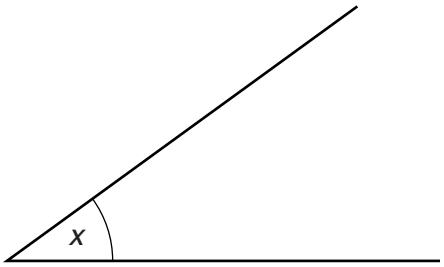
3 Draw the reflection of this shape in the mirror line.



[2]

4 This question is about angles.

(a)



(i) Measure angle *x*.

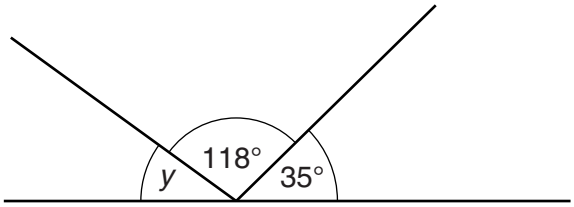
(a)(i) _____ ° **[1]**

(ii) What is the mathematical name of this type of angle?

(ii) _____ **[1]**

(b) Complete these sentences.

(i)

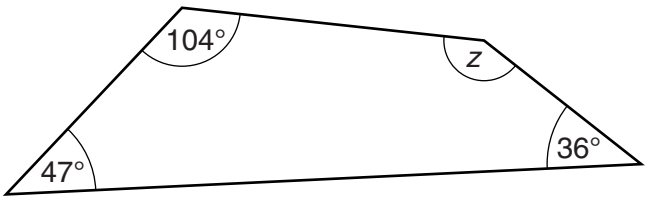


Not to scale

Angle *y* is _____ ° because _____

_____ . **[2]**

(ii)



Not to scale

Angle *z* is _____ ° because _____

_____ . **[2]**

5 **(a)** Work out.

(i) the cube of 4

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

(ii) $\sqrt{361}$

(ii) _____ **[1]**

(b) Complete the power of 8.

$8 \times 8 \times 8 \times 8 = 8^{\square}$ **[1]**

(c) Calculate.

(i) $5^3 + 17^2$

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

(ii) $(5 + 18) \times 9 - 14$

(ii) _____ **[1]**

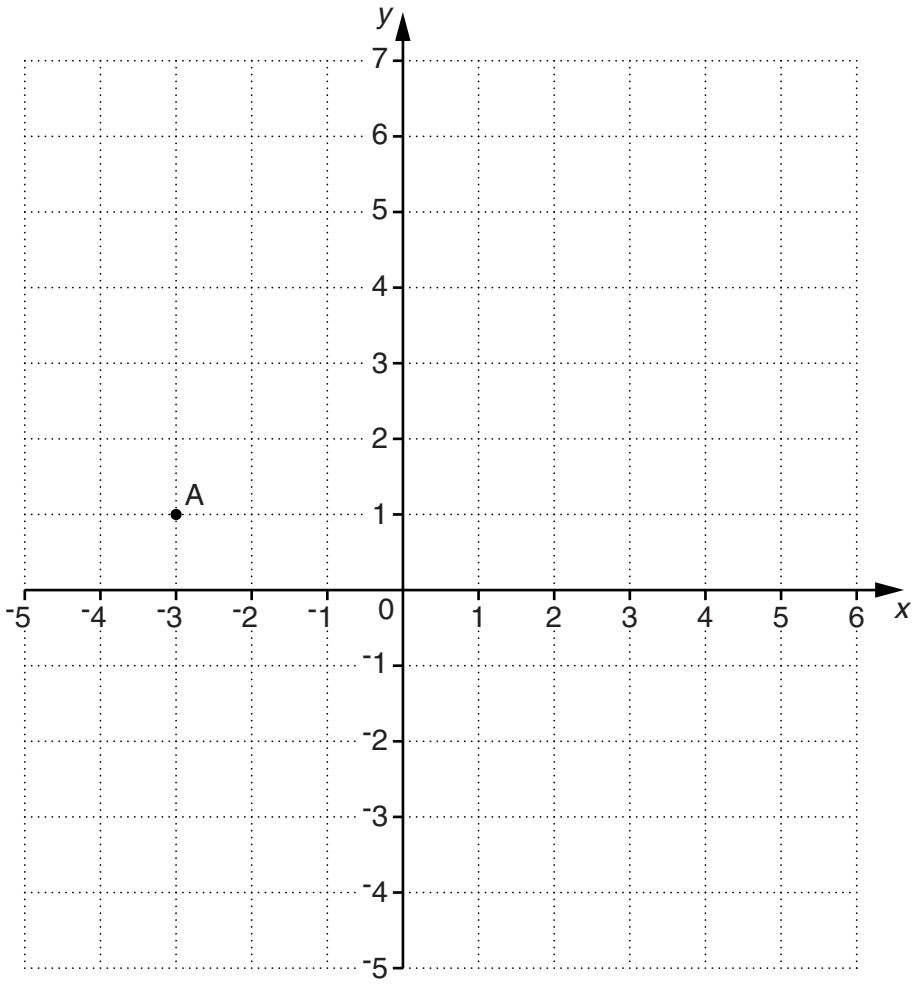
(d) Write the following in order of size, starting with the smallest.

9.75 9.705 9.057 9.507 9.07

(d) _____ _____ _____ _____ _____ **[2]**

smallest

6 Here is a grid.



(a) Write down the coordinates of point A.

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

(b) Plot the point (4, ⁻2).
Label it B. **[1]**

7 Solve.

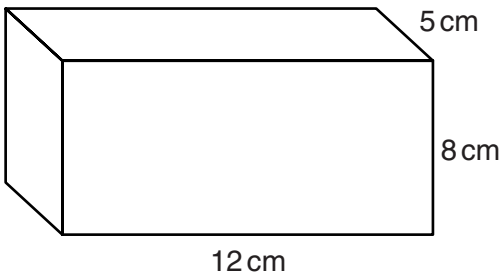
(a) $6x + 2 = 29$

(a) $x =$ _____ **[2]**

(b) $\frac{8y}{3} = 24$

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

8 Calculate the volume of the cuboid below.



_____ cm^3 **[2]**

9 **(a)** Here are some ingredients for Pork and Leek Casserole.

Pork and Leek Casserole
Serves 6 people

600 g pork
2 onions
3 leeks
50 g margarine
120 g flour

(i) Jamie is making the casserole to serve 12 people.

How much pork should he use?

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

(ii) Heidi is making the casserole for 3 people.

How many onions should she use?

(ii) _____ **[1]**

(iii) Pierre is making the casserole for 4 people.

How much flour should he use?

(iii) _____ g **[2]**

(b) Jamie also uses 1.4 litres of milk.

How many millilitres of milk does he use?

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

10 Sasha won a prize of £900 in a competition.

She gave $\frac{1}{6}$ of the prize to John and she spent 12% of the prize.

Calculate how much money Sasha has left.

£ _____ **[4]**

11 **(a)** This formula gives the total cost of some items bought from a cake shop.

Total cost in pence = 36 × number of cupcakes + 31 × number of scones

(i) Sarah buys 1 cupcake and 2 scones.

What is the total cost of Sarah's shopping?

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

(ii) Colin buys 8 cupcakes and 4 scones.

What is the total cost, in pounds, of Colin's shopping?

(ii) £ _____ **[3]**

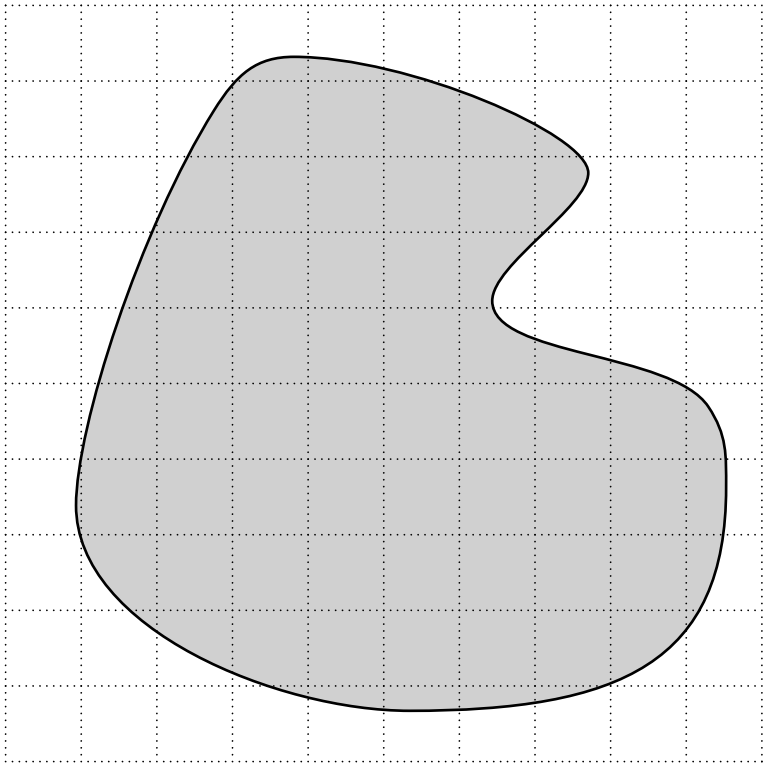
(b) Here is a formula.

$$R = 3x - 7y$$

Work out the value of R when $x = 9$ and $y = 3$.

(b) _____ **[2]**

12 (a)* The scale drawing below shows part of a wood.
The shaded area is used for paintballing.



Scale: 1 cm represents 5 km

Estimate the area used for paintballing.
You must show all your working.

(a) _____ **[5]**

(b) 8 friends go paintballing.
They each have 200 paintballs.
The paintballs cost £7.30 for one hundred.

Calculate the total cost of the paintballs.

(b) £ _____ **[2]**

(c) The friends each record how many times they were hit during the game.
The results are shown below.

120 157 97 122 103 97 55 61

(i) Calculate the range.

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

(ii) Calculate the mean.

(ii) _____ **[3]**

(d) (i) The numbers of people who went paintballing each day for four weeks are recorded below.

128	57	67	98	120	48	46	122	38	47	108	94	78	86
68	53	90	84	49	127	82	105	64	117	111	67	54	104

Complete the frequency chart.

Number of people	Tally	Frequency
30 – 49		
50 – 69		
70 – 89		
90 – 109		
110 – 129		

[2]

(ii) On how many days did 90 or more people go paintballing?

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

13 A shop sells packs of paper.
The prices are shown below.

1 pack	£4.99
2 packs	£9.76
5 packs	£24.50

Mr Jones needs to buy 15 packs of paper.

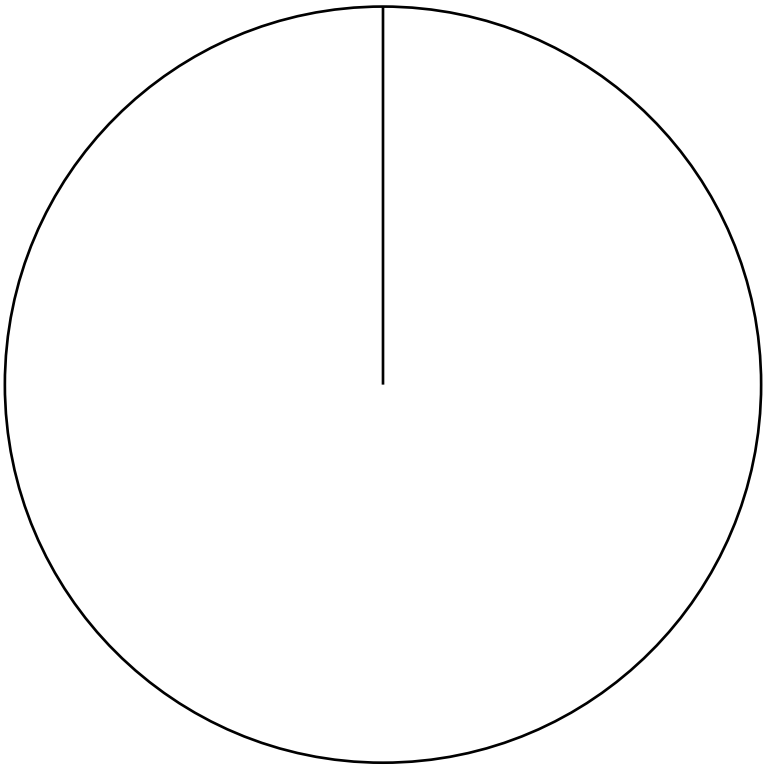
What is the lowest cost of exactly 15 packs of paper?
Show how you decide.

£ _____ **[4]**

14 Helen surveys 120 people to find out where they are going for their holidays this year. Her results are recorded below.

Destination	Number of people
USA	23
UK	16
France	14
Spain	29
Not going away	38

(a) Complete the pie chart to show their holiday destinations.
You must show all your working.



[4]

(b) Work out the percentage of people surveyed who were not going away.
Give your answer correct to 1 decimal place.

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

15 Andrew chooses a number.
His number is:

- a common factor of 36 and 48
- not a multiple of 3
- not a prime number
- greater than 1.

Which number did Andrew choose?

_____ **[2]**

16 **(a)** Write 42 as a product of its prime factors.

(a) _____ **[2]**

(b) Find the lowest common multiple of 24 and 42.

(b) _____ **[2]**

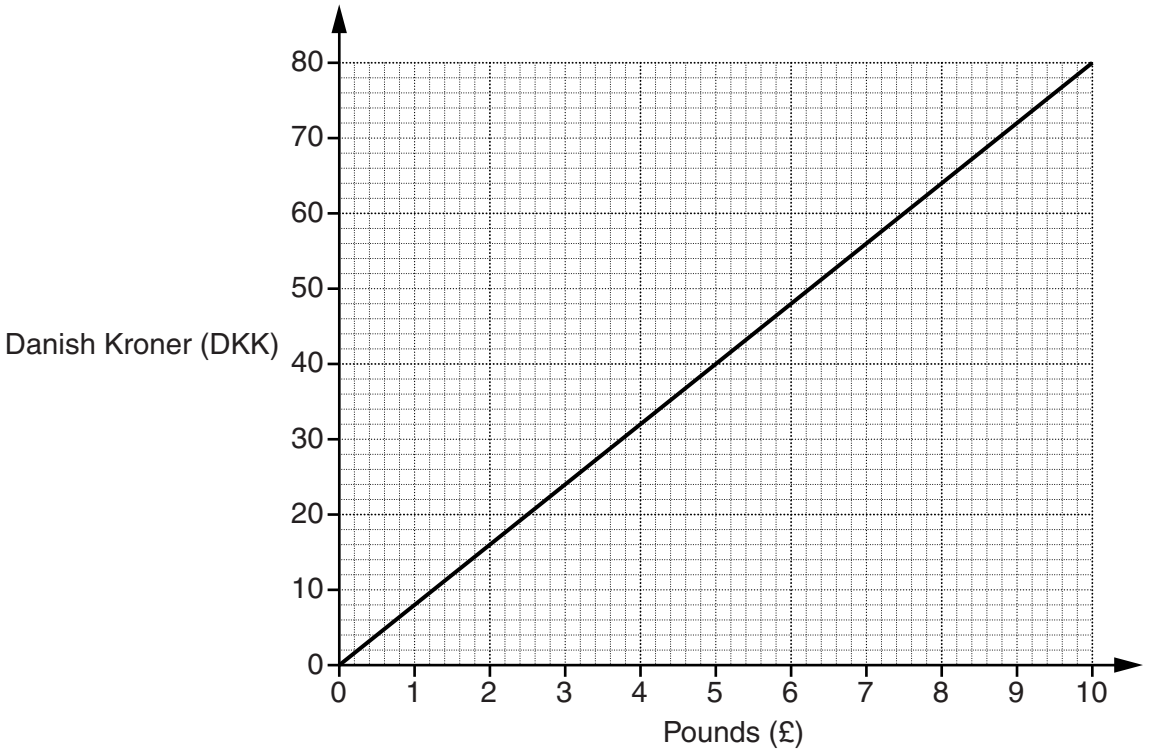
(c) A travel firm has to take 95 pupils on a visit.
It has taxis which take 7 passengers and minibuses which take 15 passengers.
They do not want to have any empty seats.

Work out how many taxis and minibuses they need to use.

(c) taxis = _____

minibuses = _____ **[2]**

17 This is a graph for converting Pounds (£) to Danish Kroner (DKK).



(a) Use the graph to convert £6 to Danish Kroner (DKK).

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

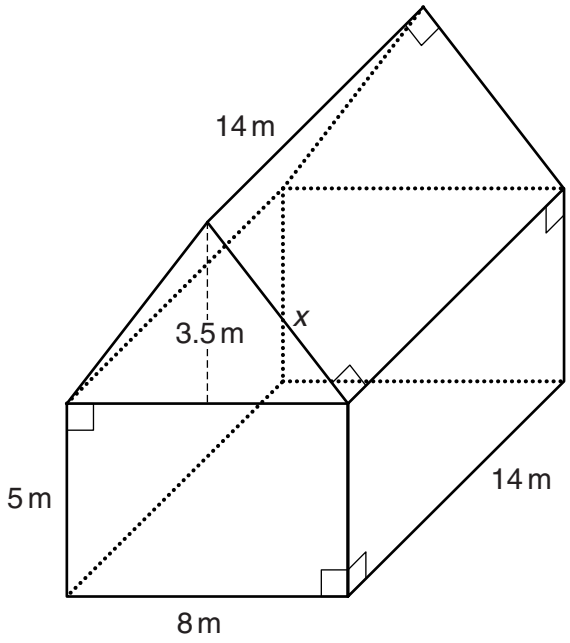
(b) Work out the gradient of the line.

(b) _____ **[2]**

(c) Convert 152 DKK to Pounds.

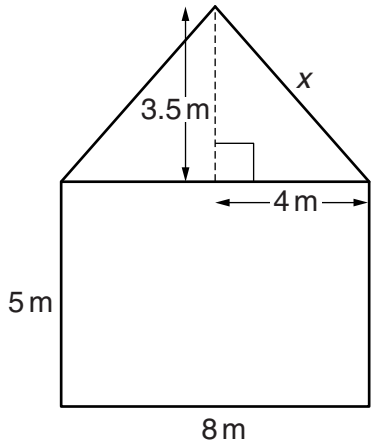
(c) £ _____ **[2]**

18 Here is a diagram of a barn.



(a) The front elevation of the barn is sketched below.

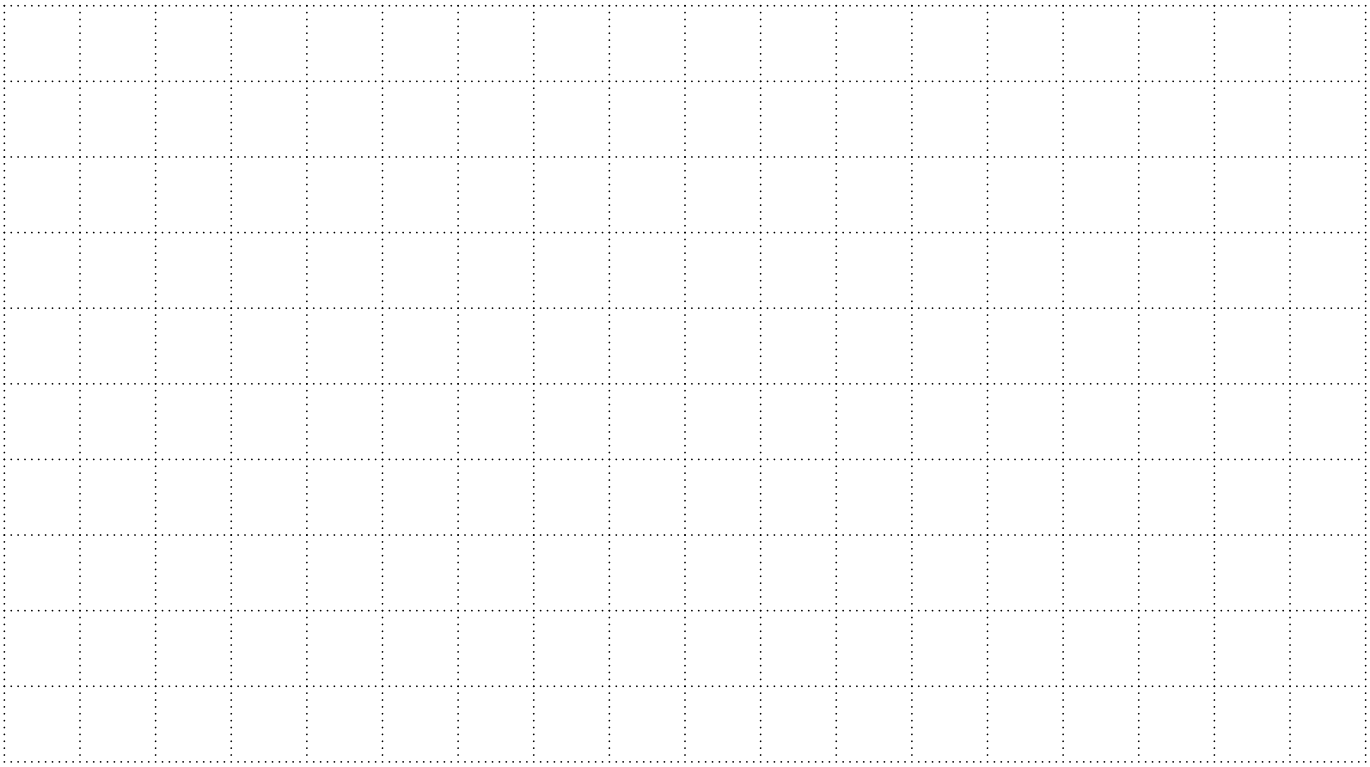
Calculate the length *x*.



Not to scale

(a) _____ m **[3]**

(b) Draw the **plan view** of the barn on the grid below using a scale of 1 cm to 1 m.



[1]

19 Here are the first four terms of a sequence.

17 23 29 35

Write an expression for the nth term.

_____ **[2]**

20 Golf scores are recorded on cards.
The table summarises the scores for one day.

Score	Frequency
60 – 66	10
67 – 73	15
74 – 80	14
81 – 87	4

(a) Calculate an estimate of the mean score.

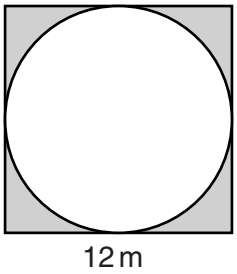
(a) _____ **[4]**

(b) A card is picked at random.

Work out the probability that the score on the card is 73 or below.

(b) _____ **[2]**

21 The diagram shows a circular pond with paving stones around the edge making up a square. The length of each side of the square is 12 m.



Not to scale

Calculate the shaded area.

_____ m^2 **[4]**

TURN OVER FOR QUESTION 22

22 The equation $x^3 - x^2 - 40 = 0$ has a solution between $x = 3$ and $x = 4$.

Find this value of x correct to 1 decimal place.
Show clearly your trials and the values of their outcomes.

x			

$x =$ _____ **[3]**

END OF QUESTION PAPER