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OCR
RECOGNISING ACHIEVEMENT

Thursday 28 February 2013 – Afternoon

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

J56701
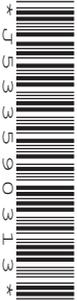
Candidate forename		Candidate surname	

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

Turn over

Formulae Sheet: Foundation Tier

Area of trapezium $= \frac{1}{2}(a + b)h$
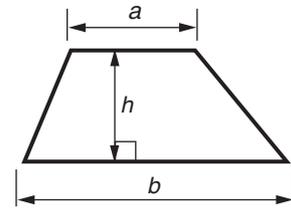
Volume of prism = (area of cross-section) × length
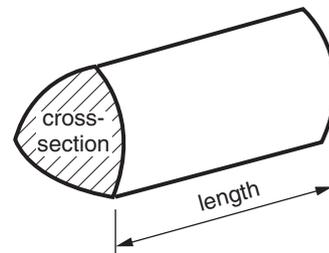
PLEASE DO NOT WRITE ON THIS PAGE

1 (a) Write 4627

(i) to the nearest 10,

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

(ii) to the nearest 100.

(ii) _____ **[1]**

(b) Work out.

(i) 3.6×100

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

(ii) $146.3 \div 10$

(ii) _____ **[1]**

(c) Work out.

25% of 52

(c) _____ **[2]**

2 This is a map of a village.

Scale: 1 cm represents 20 m
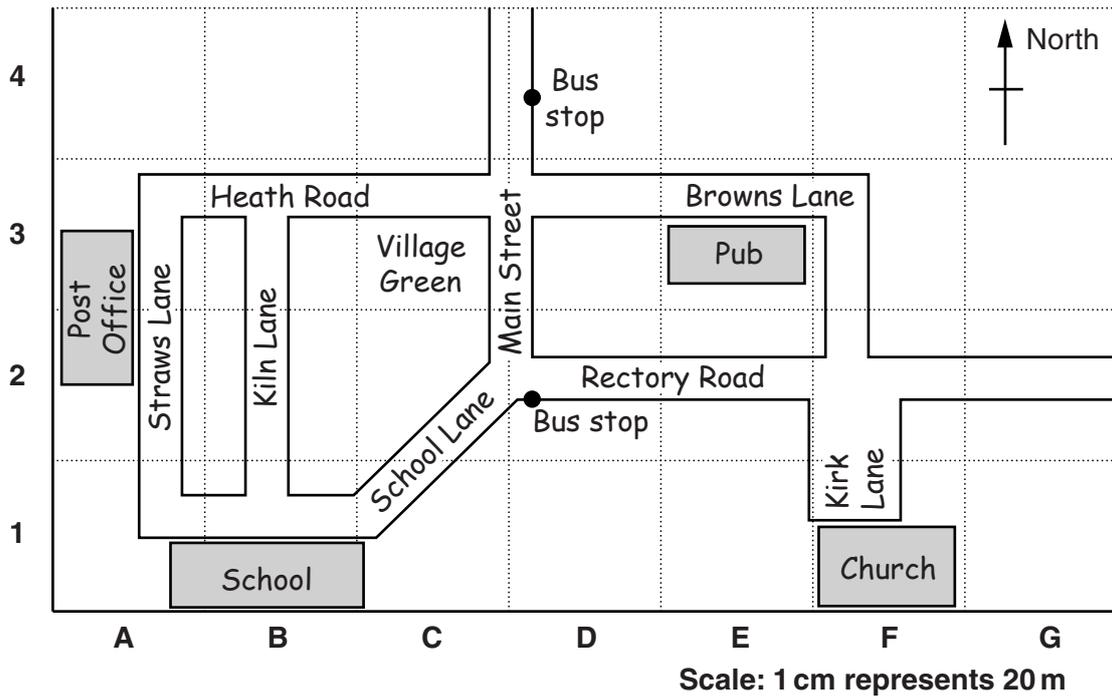
(a) The grid reference of the Church on the map is F1.

What is the grid reference of the Pub?

(a) _____ **[1]**

(b) Mia and John get off the bus at the bus stop at the end of Rectory Road.

(i) Mia walks along Rectory Road.

In what compass direction is Mia walking?

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

(ii) John walks along School Lane towards the school.

In what compass direction is John walking?

(ii) _____ **[1]**

(c) What is the actual distance between the two bus stops?

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

(d) A visitor asks for directions from the Church to the Post Office.

> left   back   first   right   third   second

Complete the directions using words from the list above.
You may use a word more than once.

Walk down Kirk Lane and turn left onto Rectory Road.

Walk down Rectory Road and turn _____ onto Main Street.

Walk down Main Street and turn _____ onto Heath Road.

Walk down Heath Road and take the _____ turn

on the _____ onto Straws Lane.

The Post Office is then on your _____.   **[2]**

3 Three friends have their heights measured.

Ben is 1.4 metres tall.
Josef is 1.13 metres tall.
Leila is 0.95 metres tall.

(a) How much taller is Josef than Leila?

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

(b) How much taller is Ben than Josef?

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

4   Jamie is doing some baking.

   (a)   His chocolate cake takes half an hour to bake.
   Jamie puts the chocolate cake in the oven at twenty to eleven.

   At what time should he take the cake out of the oven?

   (a) _____ **[1]**

   (b)   His fruit cake takes two hours and fifteen minutes to bake.
   Jamie puts the fruit cake in the oven at 1:50.

   At what time should he take the cake out of the oven?

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

   (c)   Jamie is also cooking a rice pudding.
   He needs this to be ready at 6:25.
   The rice pudding takes one hour and forty five minutes to cook.

   At what time should he put the rice pudding in the oven?

   (c) _____ **[1]**

5   Sian has a bedroom that is in the shape of a rectangle.
   It is 3 metres long and 2 metres wide.

   Sian is going to carpet the floor of the bedroom.
   She is going to use carpet tiles.
   The carpet tiles are squares of side 50 cm.
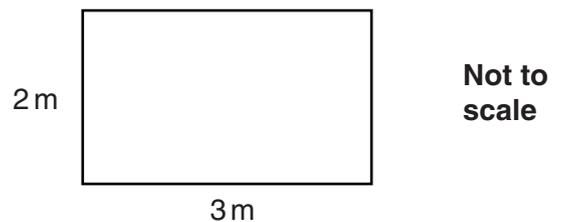
   How many carpet tiles will she need?

2 m   **Not to scale**

3 m

   _____ **[3]**

6 Oliver is in hospital.
His temperature is recorded every three hours.
This is a graph showing Oliver's temperature during one day.
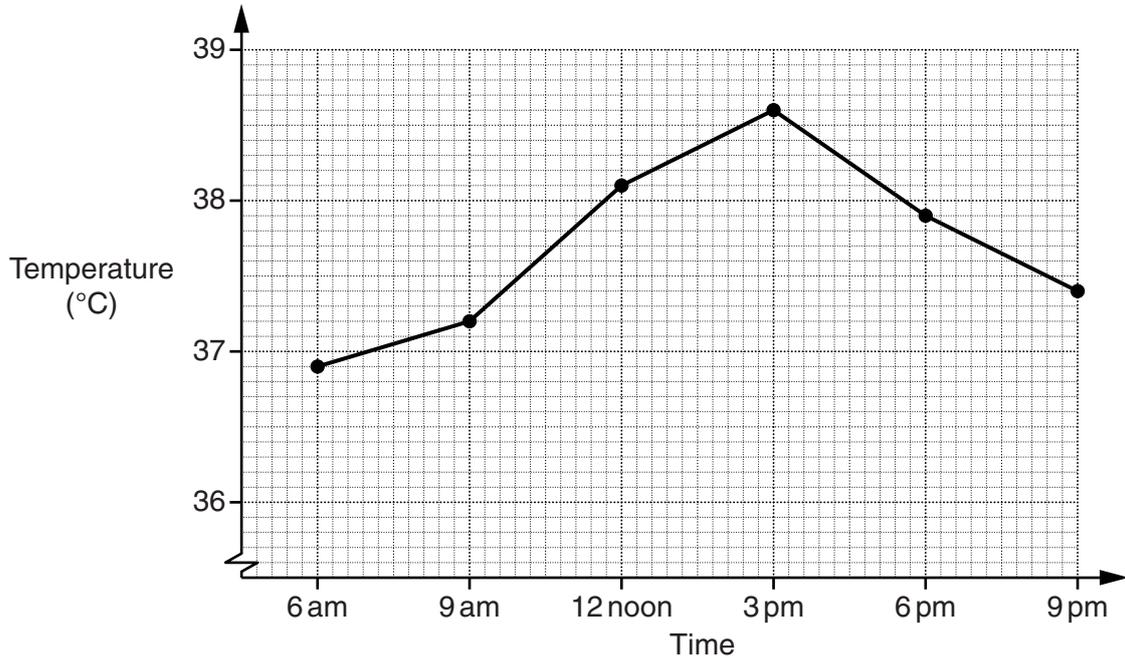
(a) What is Oliver's temperature at 6pm?

(a) _____ °C **[1]**

(b) What is his maximum recorded temperature?

(b) _____ °C **[1]**

(c) How much did his temperature rise between 9am and 12 noon?

(c) _____ °C **[1]**

(d) Describe how Oliver's temperature varied throughout the day.

_____

_____

_____ **[1]**

Turn over

7 (a) Ravi has drawn these triangles on one centimetre square paper.
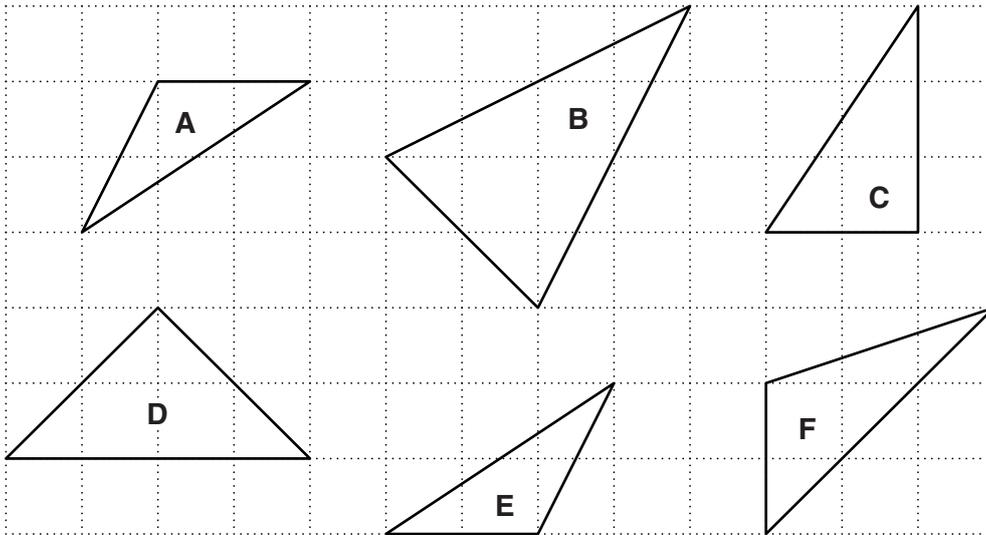
(i) Which two triangles contain a right angle?

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

(ii) Which two triangles are isosceles?

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

(iii) Which two triangles are congruent?

(iii) _____ and _____ **[1]**

(b) These are the names of some special quadrilaterals.

kite   square   parallelogram   rhombus   rectangle

Choose a quadrilateral from the list above that satisfies each set of conditions.

(i)   •   All the sides are the same length
      •   All the angles are right angles
      •   There are four lines of symmetry

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

(ii)   •   All the sides are the same length
      •   Opposite angles are equal
      •   There are only two lines of symmetry

(ii) _____ **[1]**

(iii)   •   Two pairs of adjacent sides are of equal length
      •   One pair of opposite angles are equal
      •   There is only one line of symmetry

(iii) _____ **[1]**

Turn over

8 **(a)** Solve.

    (i) $m - 7 = 12$

                              (a)(i) $m =$ _____ **[1]**

    (ii) $5t = 35$

                              (ii) $t =$ _____ **[1]**

(b) Simplify fully.

    (i) $3p + 2p + 4p$

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

    (ii) $5x + y - 3y + 6x$

                              (ii) _____ **[2]**

9 **(a)** On Monday the temperature at midday was 3 °C.
At midnight the temperature had fallen to ⁻6 °C.

    (i) How many degrees had the temperature fallen?

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

    (ii) By midday on Tuesday the temperature had risen by 4 degrees from the temperature at midnight.

       What was the temperature at midday on Tuesday?

                      (ii) _____ °C **[1]**

(b) **(i)** Two numbers multiply together to equal ⁻21.
They add together to equal ⁻4.

       What are the two numbers?

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

    (ii) Two numbers multiply together to equal 10.
They add together to equal ⁻7.

       What are the two numbers?

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

10 **(a)** Work out.

   (i) 45.3×6

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

   (ii) $448 \div 14$

   (ii) _____ **[2]**

(b) A factory makes electrical goods for 51 weeks in a year.
It makes 132 toasters every week.

How many toasters does it make in a year?

   (b) _____ **[3]**

11 (a) In a TV gameshow the contestant is selected from a panel of five people.
Each person on the panel is equally likely to be selected.

The people on the panel are:

Kate	Elizabeth	Dave	Meena	William
(female)	(female)	(male)	(female)	(male)

(i) What is the probability that Dave is selected?

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

(ii) What is the probability that a female is selected?

(ii) _____ **[1]**

(iii) When a person is selected, they are replaced on the panel by a new person.
After three games William has still not been selected.

What is the probability that he is selected next time?

(iii) _____ **[1]**

(b) In a different gameshow there are 12 people on a panel and one person is selected to be the contestant.
Each person is equally likely to be selected.
The probability that a male is selected is $\frac{2}{3}$.

How many males are there on the panel?

(b) _____ **[2]**

12 (a) Here are the first five terms in two sequences.

What is the next term in each of these sequences?

(i)   4   7   10   13   16

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

(ii)   3   4   6   9   13

(ii) _____ **[1]**

(b) Harry uses this set of rules to find the next term in a sequence.

- If the number is even, divide by 2.

- If the number is odd, multiply by 3 and add 1.

(i) Harry starts one sequence with 12.
These are the first four terms.

12   6   3   10

What are the next 3 terms in Harry's sequence?

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

(ii) A different sequence follows Harry's rules.
The second term in the sequence is 22.

What numbers could the first term have been?

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

13* Lizzie and Megan are competing to swim for the school team in the 50 m freestyle.
They both complete some trial swims and record their times.

Lizzie swims 5 trials and these are her times (in seconds).

26.3   26.2   26.7   26.3   26.5

Megan swims 6 trials and these are her times (in seconds).

26.5   26.7   26.1   26.3   26.9   26.5

Who should the girls' teacher select?
State clearly the figures that you use for your calculations. **[5]**

Turn over

14 (a) Convert the following fractions to decimals.

(i) $\dfrac{7}{10}$

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

(ii) $\dfrac{3}{4}$

(ii) _____ **[1]**

(b) Which fraction is bigger, $\dfrac{1}{3}$ or $\dfrac{3}{10}$?

Show how you decide.

(b) _____ **[2]**

(c) Work out.

$$3\dfrac{2}{5} + \dfrac{2}{3}$$

Give your answer as a mixed number.

(c) _____ **[3]**

15 (a) Multiply out.

$$a(3 + a)$$

(a) _____ **[1]**

(b) Factorise.

$$4b - 12$$

(b) _____ **[1]**

(c) Solve this inequality.

$$3x - 6 < x + 4$$

(c) _____ **[3]**

16 Sofia uses a pedometer to record the number of steps she takes each day for one month. Her results are summarised in the table below.

Steps per day (s)	Frequency
$6000 \leqslant s < 7000$	3
$7000 \leqslant s < 8000$	4
$8000 \leqslant s < 9000$	6
$9000 \leqslant s < 10\,000$	8
$10\,000 \leqslant s < 11\,000$	7
$11\,000 \leqslant s < 12\,000$	2

(a) Draw a frequency polygon to display this information.

Frequency

6000   8000   10 000   12 000

Number of steps per day (s)
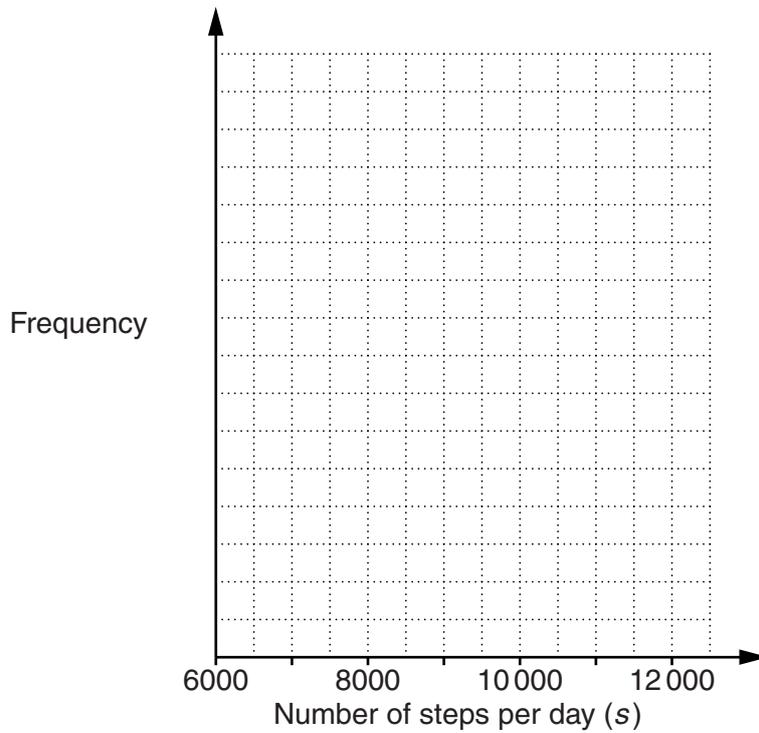
[3]

(b) Write down the modal class of the number of steps per day.

(b) _____ [1]

(c) Sofia reads that taking at least 10 000 steps per day is an important part of a healthy lifestyle.

For what percentage of the month did she meet this target?

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

(d) One day Sofia goes for a walk in the hills.
The length of the walk is 7 km, correct to the nearest kilometre.

What is the longest possible length of Sofia's walk?

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

17 Kate thinks of a number.
She multiplies it by 3 and then adds 3.

Leo thinks of the same number as Kate.
He subtracts 5 and then multiplies the result by 6.

Kate and Leo both end up with the same number.

Find the numbers that they start and end with.

Start _____

End _____ **[4]**

Turn over

18 Enlarge this triangle with centre C and scale factor 3.
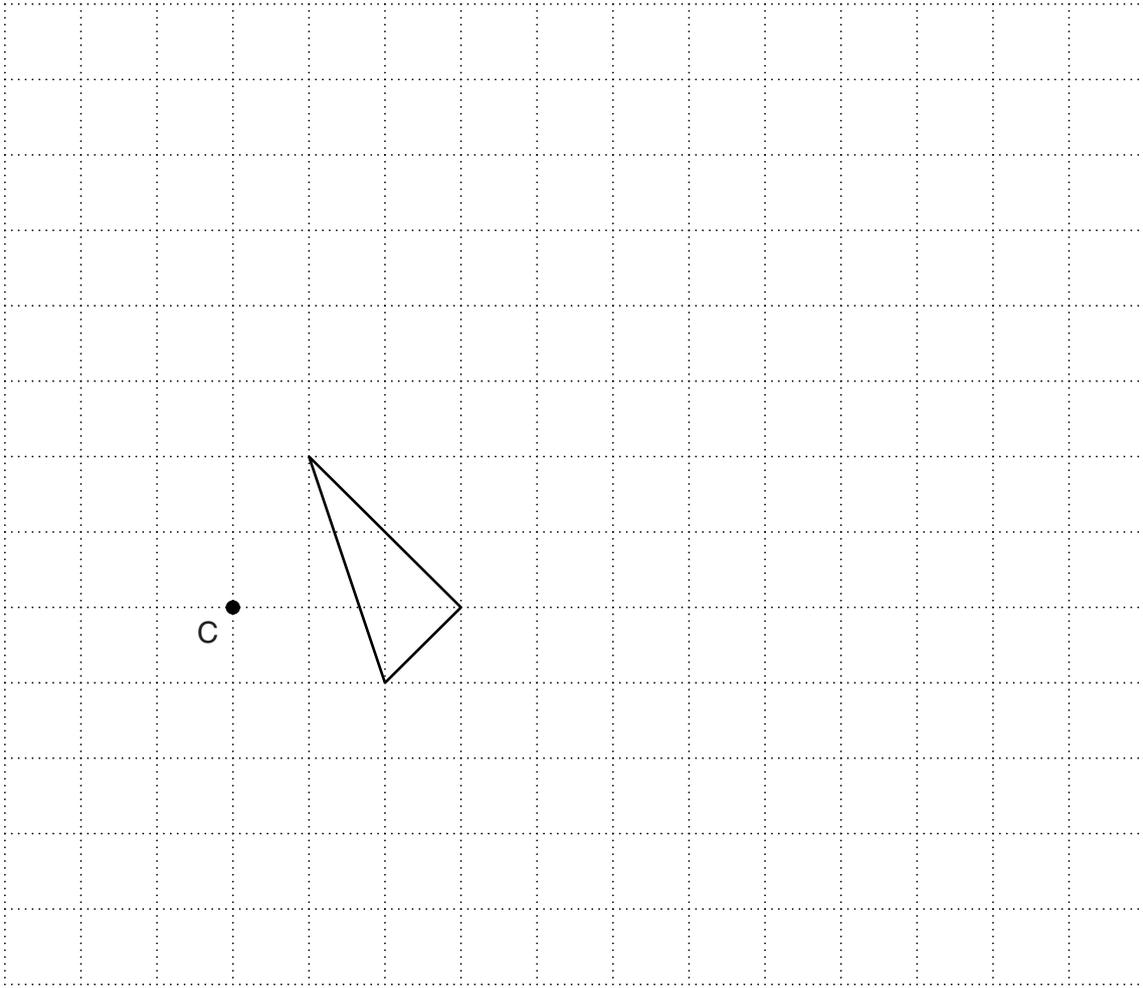
[3]

19 (a) This is a 3-D sketch of a cube.

(i) Which **one** of the following shapes is a net of a cube?
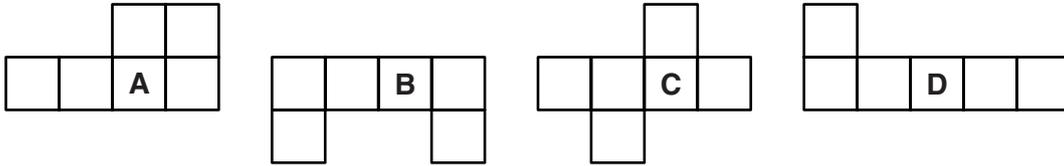
A   B   C   D

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

(ii) Draw a different net of a cube on this square paper.
Do not draw reflections or rotations of your answer to part **(a)(i)**.

[1]

Turn over
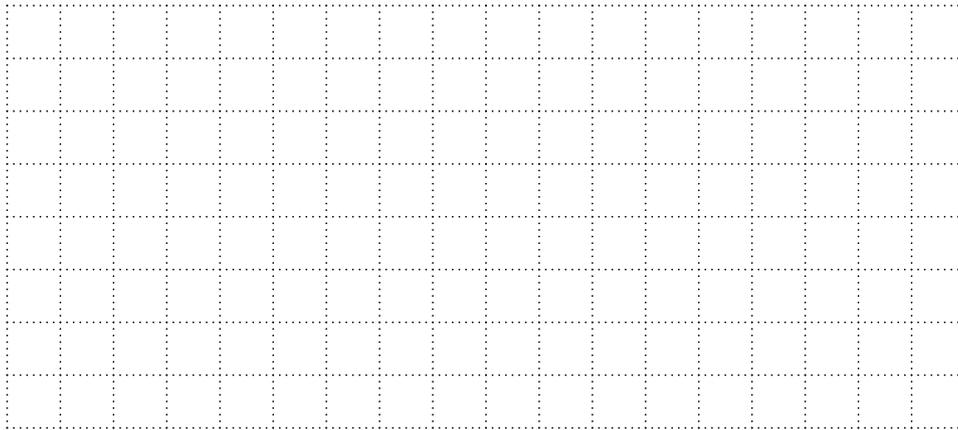
(b) ABCDE is a square-based pyramid.
The length of each edge is 6 cm.
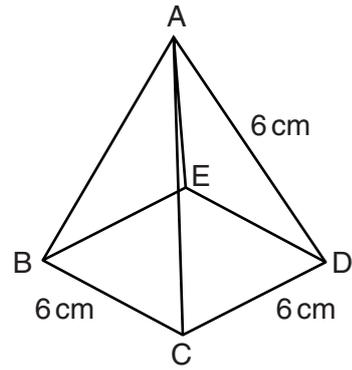
(i) Construct a full-size net of the pyramid.
The base is drawn for you.
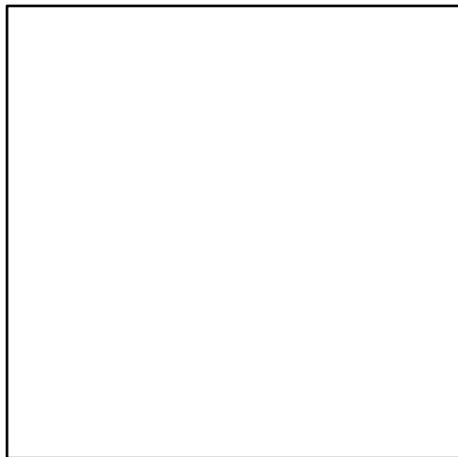
[2]

(ii) Use measurements from your diagram to calculate the total surface area of the pyramid.

(ii) _____ cm^2 **[4]**

END OF QUESTION PAPER

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