Centre Number

Candidate Number

Edexcel GCSE

Mathematics B
Unit 3: Number, Algebra, Geometry 2 (Calculator)

Foundation Tier

Monday 17 June 2013 – Morning
Time: 1 hour 30 minutes

Paper Reference
5MB3F/01

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need*.
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*****) are ones where the quality of your written communication will be assessed.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

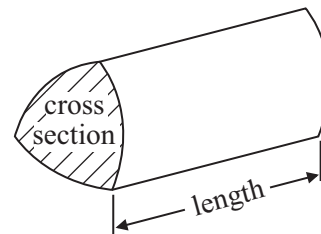*Turn over* ▶

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Area of trapezium = $\frac{1}{2}(a + b)h$
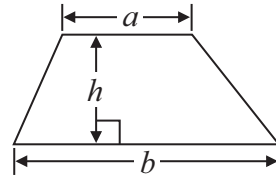
Volume of prism = area of cross section × length

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 (a) Work out 6.7^2

....
(1)

   (b) Find $\sqrt{13.69}$

....
(1)

(Total for Question 1 is 2 marks)

2 Complete this bill.

Jill's Wool Shop

Item	Number of items	Cost of one item	Total
Pattern	2	£2.85	£5.70
Button	16	£0.52	£.................................
Balls of wool	....	£4.65	£37.20
		Total cost	£.................................

(Total for Question 2 is 3 marks)

3 Here is a polygon.
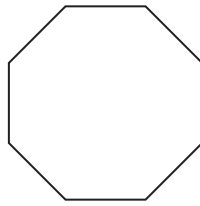
(a) Write down the mathematical name of this polygon.

....

(1)
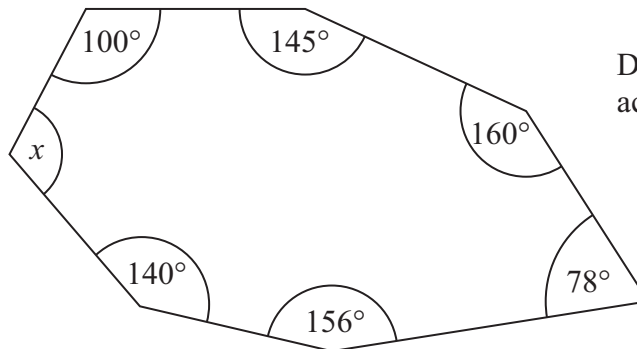
(b) In the space below, draw a pentagon.

(1)

Here is a heptagon.

Diagram **NOT** accurately drawn

All the angles of a heptagon add up to 900°

(c) Work out the size of the angle marked x.

.... °

(3)

(Total for Question 3 is 5 marks)

4 (a) Write $\frac{1}{2}$ as a decimal.

....
(1)

(b) Write 0.75 as a fraction.

....
(1)

(c) Write 19 out of 30 as a fraction.

....
(1)

(Total for Question 4 is 3 marks)

5 Chris wants to go to the theatre with her friends.

On Saturday night a theatre ticket costs £67.50

Chris sees this special offer for theatre tickets.

> **Special Offer**
>
> Monday night
> Theatre tickets
>
> 2 tickets for £75

Chris needs 8 theatre tickets.

It will be cheaper to buy the 8 tickets for Monday night rather than for Saturday night.
How much cheaper?

£.....................................

(Total for Question 5 is 3 marks)

Turn over ▶

*6   The diagram shows the distances by road between five towns A, B, C, D and E.

B

45 km   30 km   Diagram **NOT**
                                        accurately drawn

28 km   A   52 km   C

D

20 km

40 km   26 km
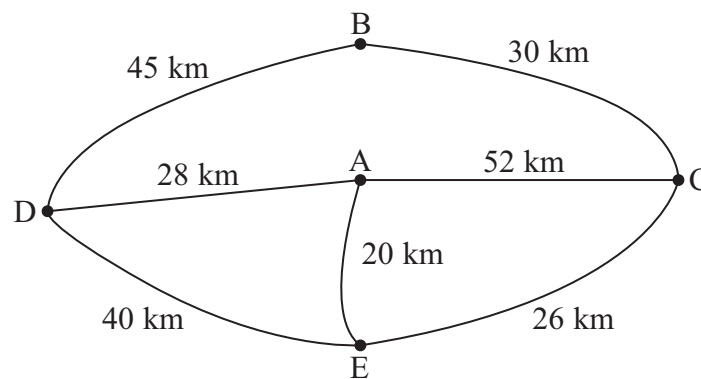
E

Amir delivers computers.

He starts at town A.
He delivers computers to each of four towns B, C, D and E.
He finishes at town A.

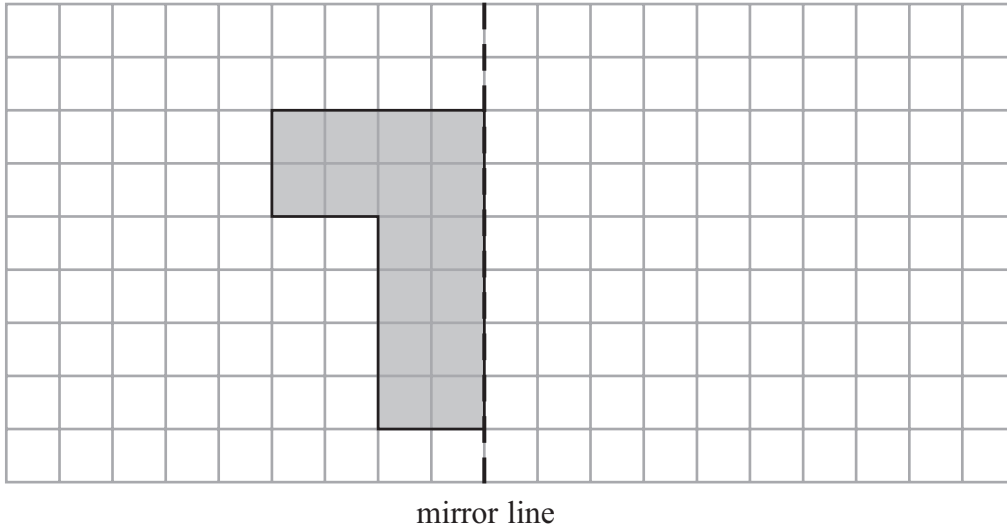Amir wants to drive the shortest distance to deliver all the computers.

Work out the shortest distance.
You must show all your working.

(Total for Question 6 is 4 marks)

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7

mirror line

Reflect the shaded shape in the mirror line.

(Total for Question 7 is 1 mark)

8 The diagram shows part of a road.

Diagram **NOT**
accurately drawn

A ✕————————————————✕ B

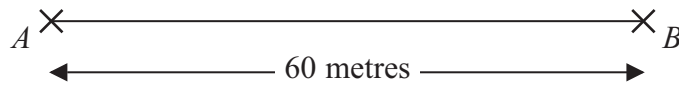←———— 60 metres ————→

Jim puts a line of traffic cones on this part of the road.
He puts traffic cones every 2 metres from *A* to *B*.

Jim puts the first traffic cone at *A*.
He puts the last traffic cone at *B*.

Work out the total number of traffic cones Jim puts from *A* to *B*.

....

(Total for Question 8 is 2 marks)

9 On Monday morning, Shruti has £135.70 in her bank account.

On Monday, Shruti
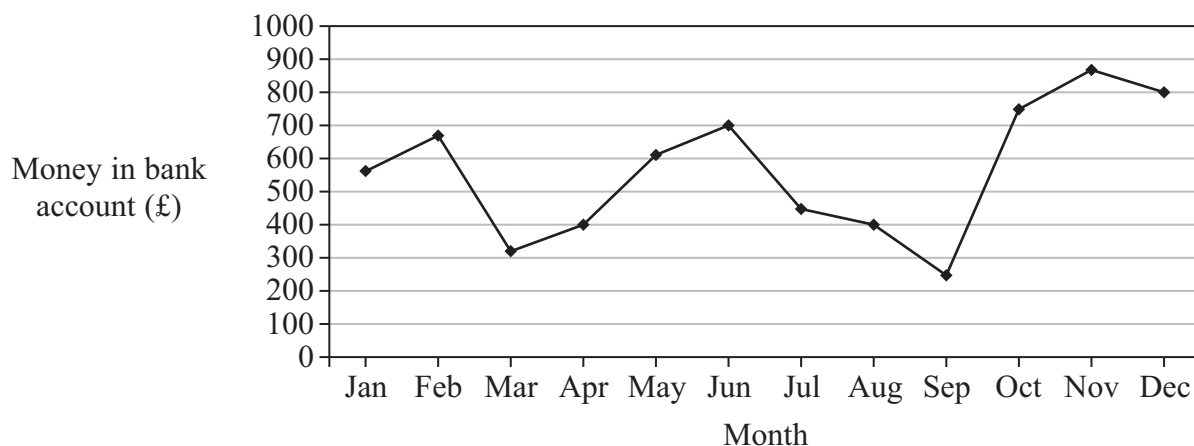
        puts £85 into her bank account
        spends £45.56 from her bank account

(a) How much money is in Shruti's bank account at the end of Monday?

£...

(3)

Shruti wants to find out how much money was in her bank account at the beginning of each month for the last twelve months.

This graph shows this information.

(b) How much money was in Shruti's bank account at the beginning of June?

£...

(1)

(c) At the beginning of which month was there the most money in Shruti's bank account?
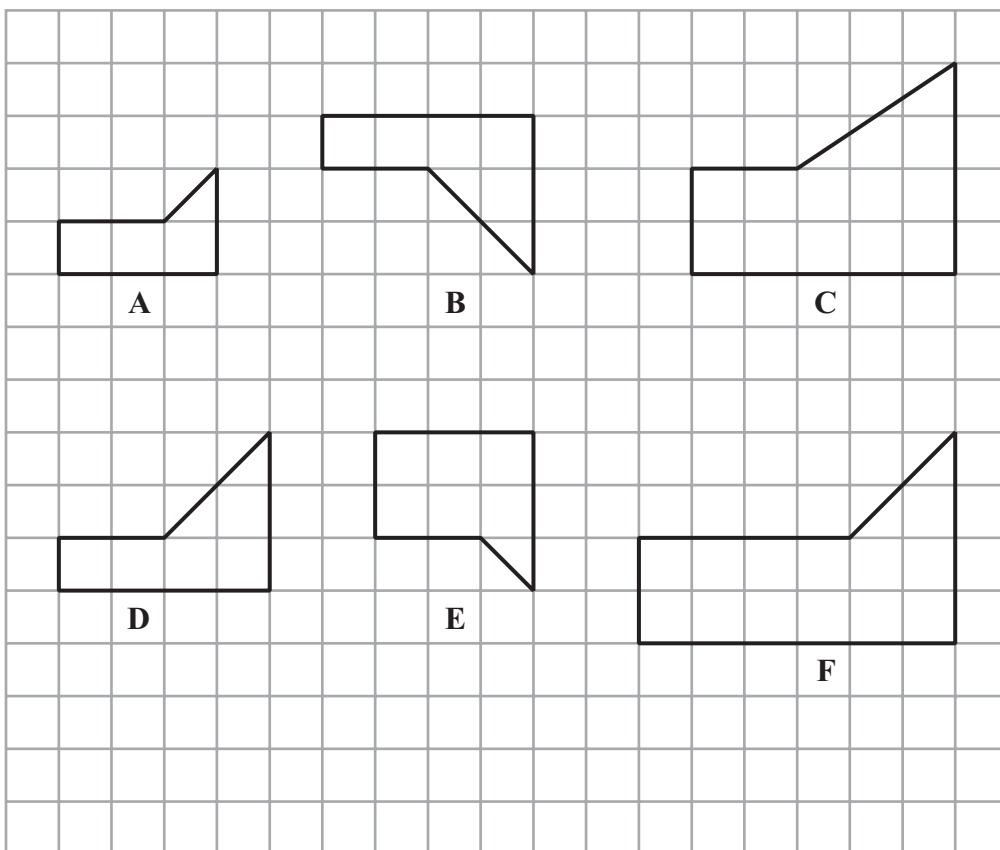
....

(1)

(d) At the beginning of which **two** months was there the same amount of money in Shruti's bank account?

.... and ....

(1)

(Total for Question 9 is 6 marks)

10 Six shapes are drawn on the grid.

Two of the shapes are congruent.

(a) Write down the letters of these two shapes.

.... and ....
(1)

One of the shapes is similar to shape **A**.

(b) Write down the letter of this shape.

....
(1)

(Total for Question 10 is 2 marks)

11 Michael sells cans of drink in his shop.

The cans of drink are delivered in boxes to the shop.
There are 24 cans of drink in a box.

On Tuesday morning, Michael had no cans of drink in the shop.
On Tuesday afternoon, 18 boxes of cans of drink were delivered to the shop.

When the shop closed on Tuesday, Michael had 15 cans of drink left.

How many cans of drink did Michael sell on Tuesday?

....

(Total for Question 11 is 3 marks)

12 (a) Solve $k + 4 = 10$

$k = $ ....
(1)

(b) Solve $m + m + m = 21$

$m = $ ....
(1)

(c) Solve $5p - 4 = 9$

$p = $ ....
(2)

(Total for Question 12 is 4 marks)

13 Here is a triangle.
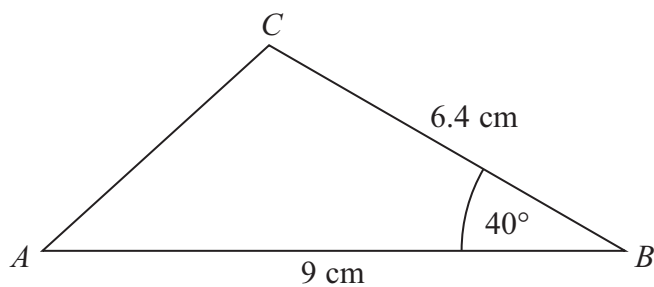
C

6.4 cm

40°

A

9 cm

B

Diagram **NOT**
accurately drawn

Make an accurate drawing of triangle *ABC*.
The line *AB* has already been drawn for you.

A _____ B

(Total for Question 13 is 2 marks)

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14 Tracy uses this rule to work out the cost, in pounds, of printing invitations.

Cost = number of invitations × 1.25 + 4

(a) Work out the cost of printing 20 invitations.

£...
(2)

Martin uses the same rule to work out the cost of printing invitations.
The cost is £47.75

(b) Work out how many invitations Martin had printed.

....
(3)

(Total for Question 14 is 5 marks)

15 Here is a map showing three towns.

N

$\times$ Langford
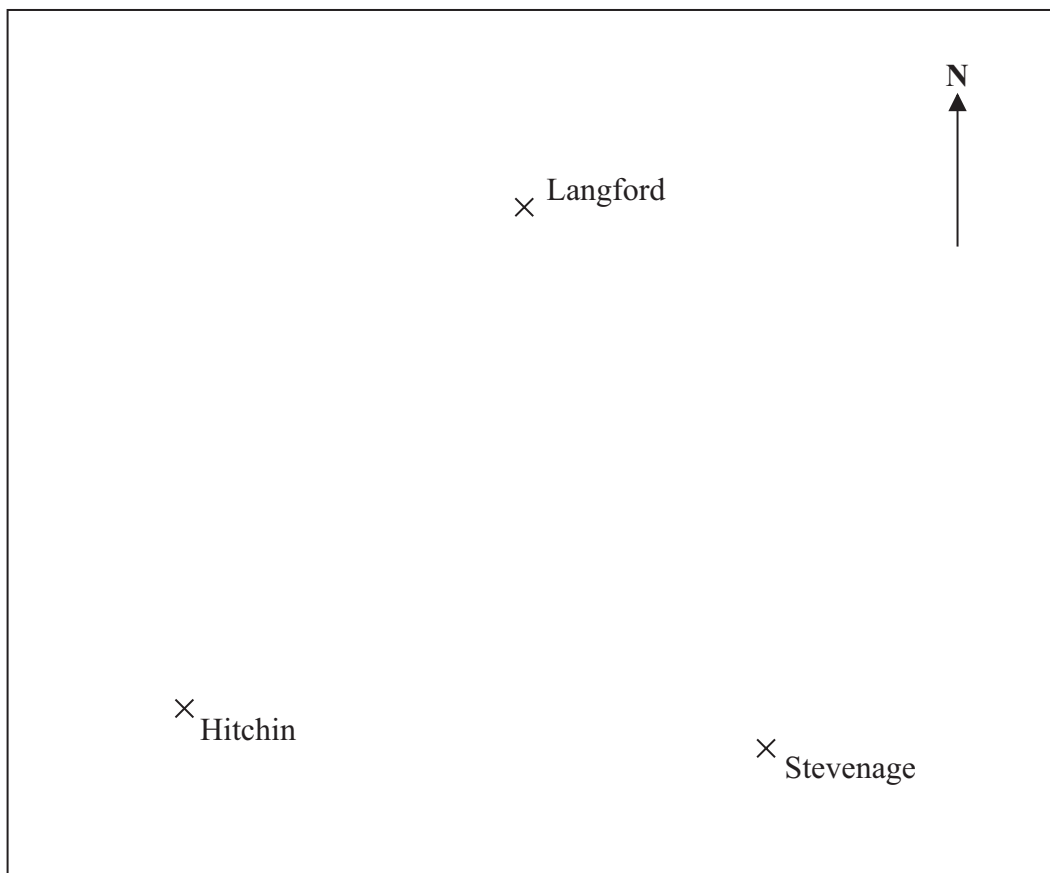
$\times$ Hitchin

$\times$ Stevenage

Scale: 1 cm represents 1 km.

(a) Work out the real distance from Hitchin to Langford.

.... km
(1)

(b) Measure the bearing of Stevenage from Langford.

.... °
(2)

(Total for Question 15 is 3 marks)

*16 Mr Jones uses 730 units of electricity.

He pays

24p per unit for the first 130 units of electricity he uses
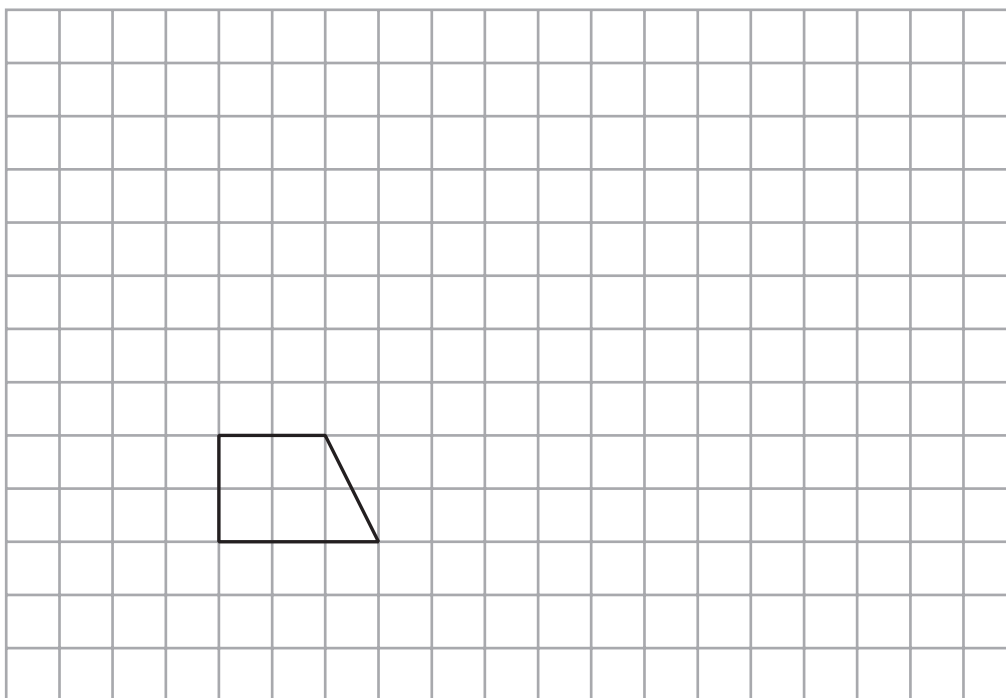13p per unit for the rest of the units of electricity he uses

Work out the total amount of money Mr Jones pays.
You must show all your working.
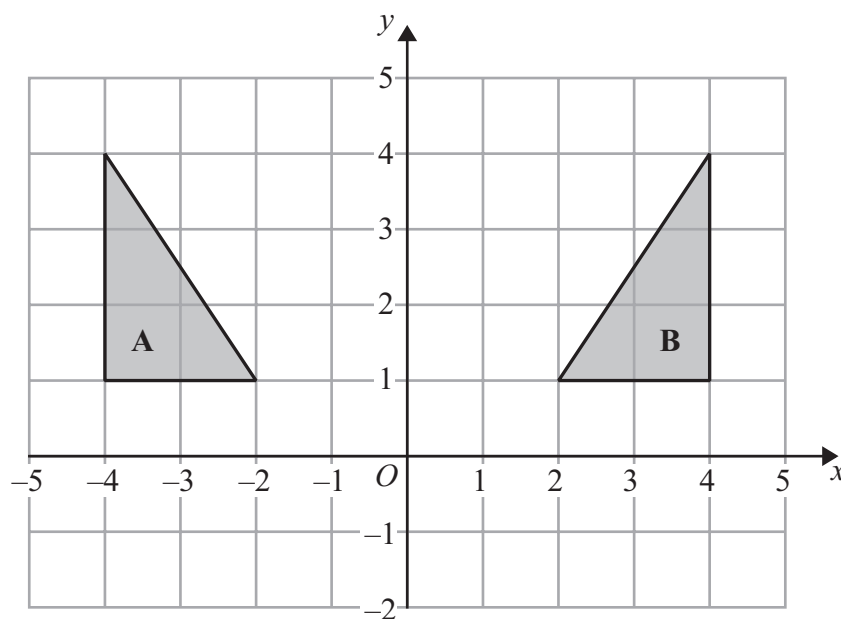
(Total for Question 16 is 4 marks)

17 Here is a shape drawn on a grid.

(a) On this grid, draw an enlargement of the shape with scale factor 3

(2)

(b) Describe fully the single transformation that maps shape **A** onto shape **B**.

....

....

(2)

(Total for Question 17 is 4 marks)

18 Use your calculator to work out

$$\sqrt{84.64} + 3.2^3$$

Write down all the figures on your calculator display.
You must give your answer as a decimal.

....

(Total for Question 18 is 2 marks)

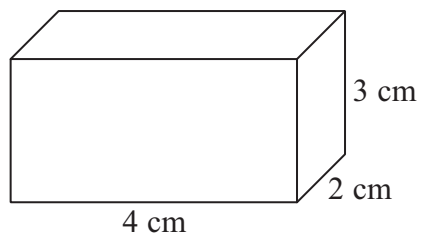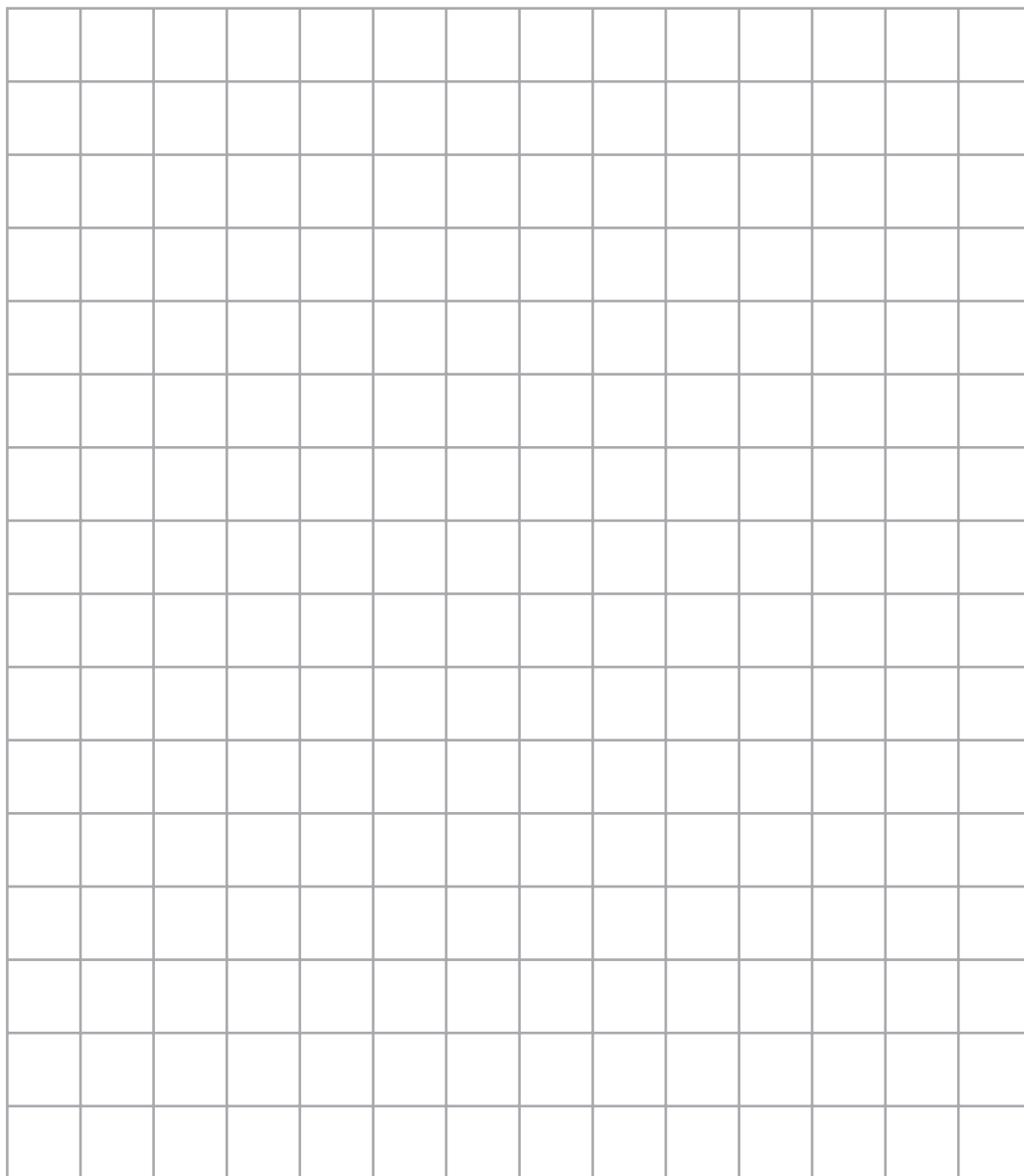**19** The diagram shows a cuboid.

Diagram **NOT**
accurately drawn

3 cm

2 cm

4 cm

On the grid of centimetre squares, draw an accurate net for this cuboid.

(Total for Question 19 is 3 marks)

20 Dan has some marbles.
Ellie has twice as many marbles as Dan.
Frank has 15 marbles.

Dan, Ellie and Frank have a total of 63 marbles.

How many marbles does Dan have?

....

(Total for Question 20 is 3 marks)

21 Petra booked a family holiday.
The total cost of the holiday was £3500 **plus** VAT at 20%.

Petra paid £900 of the total cost when she booked the holiday.
She paid the rest of the total cost in 6 equal monthly payments.

Work out the amount of each monthly payment.

£...

(Total for Question 21 is 5 marks)

*22 Ketchup is sold in three different sizes of bottle.

Small bottle   Medium bottle   Large bottle

A small bottle contains 342 g of ketchup and costs 88p
A medium bottle contains 570 g of ketchup and costs £1.95
A large bottle contains 1500 g of ketchup and costs £3.99

Which bottle is the best value for money?
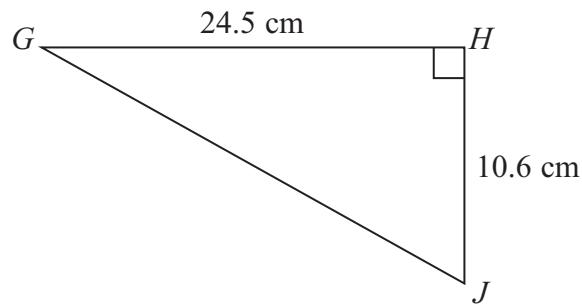You must show your working.

(Total for Question 22 is 4 marks)

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23 *GHJ* is a right-angled triangle.

Diagram **NOT** accurately drawn

Calculate the length of *GJ*.
Give your answer correct to one decimal place.

.... cm

(Total for Question 23 is 3 marks)

24 The equation

$$x^3 - 6x = 84$$

has a solution between 4 and 5

Use a trial and improvement method to find this solution.
Give your answer correct to one decimal place.
You must show all your working.

....

(Total for Question 24 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS

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