Please check the examination details below before entering your candidate information

Candidate surname

Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Centre Number

Candidate Number

Monday 12 November 2018

Morning (Time: 1 hour 30 minutes)

Paper Reference **1MA1/3F**

Mathematics

Paper 3 (Calculator)
Foundation Tier

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.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **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.*

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

Pearson

1 Write a number in each box to make the calculation correct.

(i) 56.3 $+$ $\boxed{43.7}$ $=$ 100

(1)

(ii) $\dfrac{2}{7}$ $+$ $\boxed{\dfrac{5}{7}}$ $=$ 1

(1)

(Total for Question 1 is 2 marks)

2 Write 3% as a fraction.

$\dfrac{3}{100}$

(Total for Question 2 is 1 mark)

3 Find $\sqrt{1.44}$

1.2

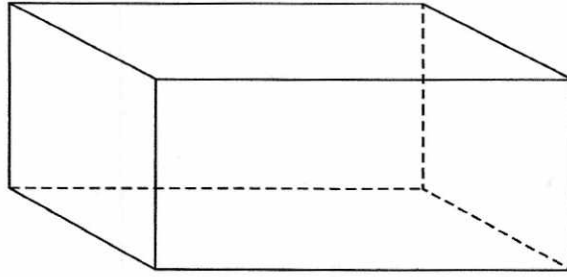**(Total for Question 3 is 1 mark)**

4 Work out $\dfrac{1}{8}$ of 720

90

(Total for Question 4 is 1 mark)

5 Here is a 3-D shape.

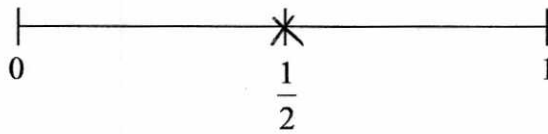(a) Write down the name of this 3-D shape.

cuboid

(1)

(b) Write down the number of edges of this 3-D shape.

12

(1)

(Total for Question 5 is 2 marks)

6 An ordinary fair dice is thrown once.

(a) On the probability scale below, mark with a cross (×) the probability that the dice lands on an odd number.

(1)

(b) Write down the probability that the dice lands on a number greater than 4

$\frac{2}{6}$ OR $\frac{1}{3}$

$\frac{2}{6}$

(1)

(Total for Question 6 is 2 marks)

7 Shaun is 1.88 m tall.

188 cm

David is 6 cm taller than Shaun.

How tall is David?

$$188 + 6$$

__194__ cm

(Total for Question 7 is 2 marks)

8 2 pens cost £2.38 × 10
5 folders cost £5.60 × 4

Ben wants to buy 20 pens and 20 folders.
He only has £50

Does Ben have enough money to buy 20 pens and 20 folders?
You must show how you get your answer.

$$£2.38 \times 10 = £23.80$$
$$£5.60 \times 4 = £22.40$$

$$23.80 + 22.40 = £46.20$$

Yes

(Total for Question 8 is 4 marks)

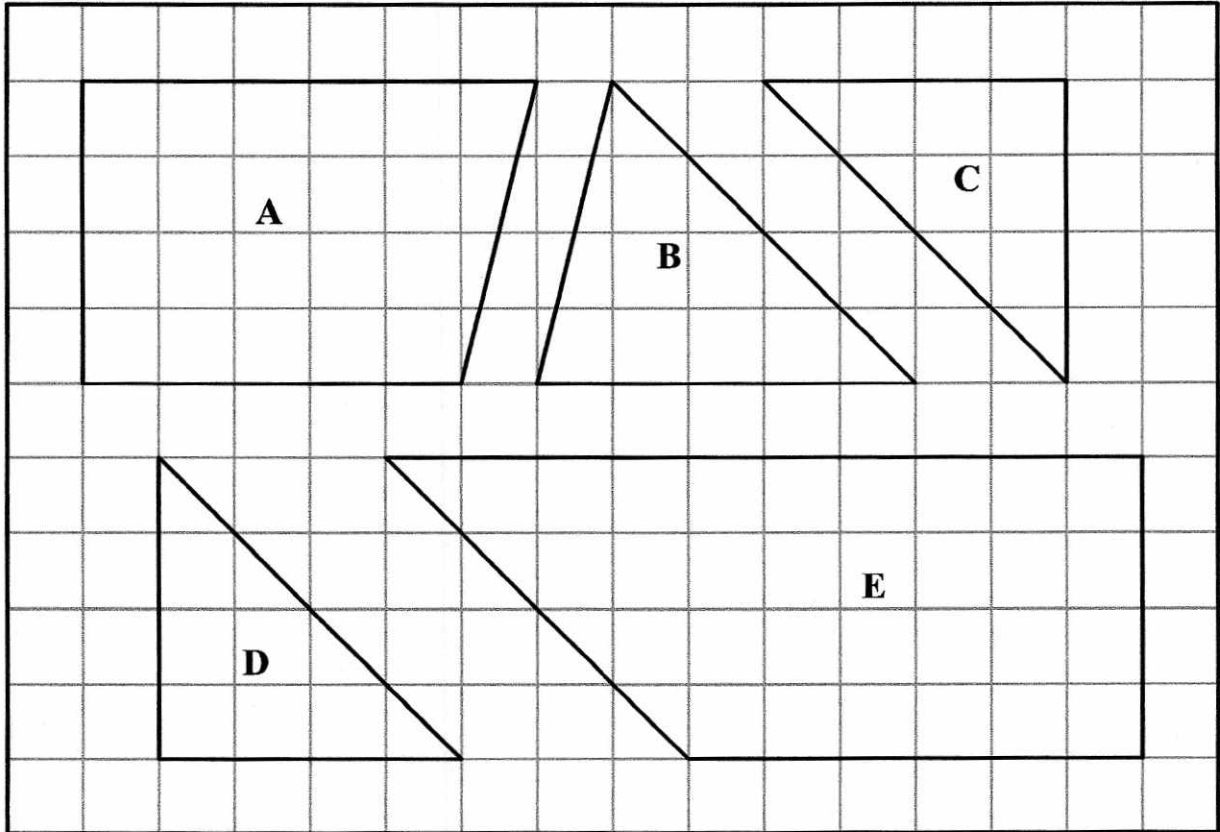**9** The diagram shows five shapes on a centimetre grid.

(a) Write down the name of shape **E**.

Trapezium

(1)

Two of the shapes are congruent. ← identical
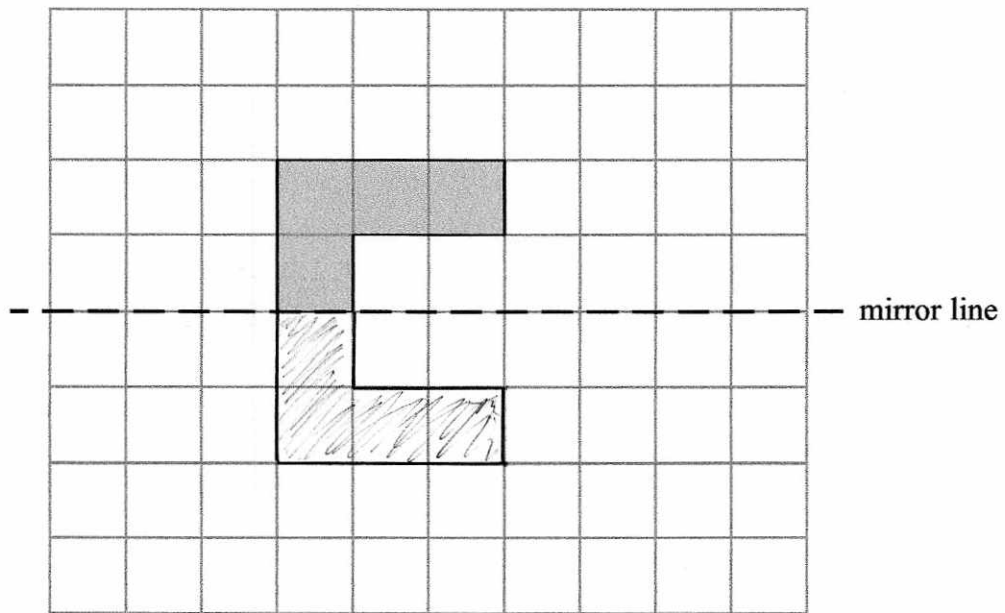
(b) Write down the letters of these two shapes.

C and D

(1)

(Total for Question 9 is 2 marks)

10 On the grid, reflect the shaded shape in the mirror line.

- - - mirror line

(Total for Question 10 is 1 mark)

11 There are men and women at a meeting.

There are 28 women.
30% of the people at the meeting are men.   70% women

Work out the total number of people at the meeting.

$$28 \ = \ 70\%$$
$$\div 7 \qquad\qquad \div 7$$
$$4 \ = \ 10\%$$
$$\times 10 \qquad\qquad \times 10$$
$$40 \ = \ 100\%$$

........................40

(Total for Question 11 is 3 marks)

12 Joan asked each of 60 people to name their favourite vegetable.

Here are her results.

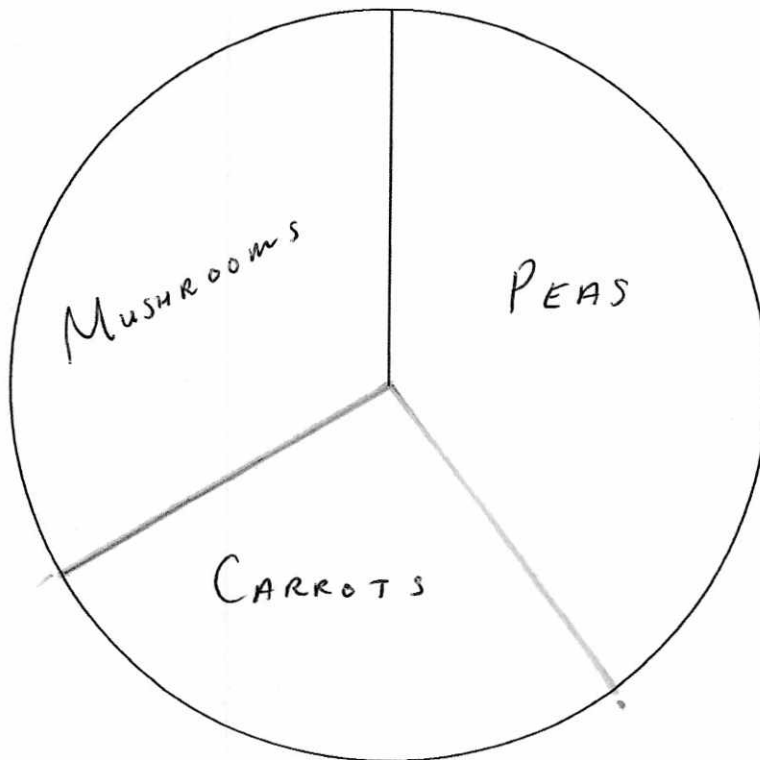| Vegetable	Frequency		Degrees
Peas	24	×6	144
Carrots	16	×6	96
Mushrooms	20	×6	120

Draw an accurate pie chart for her results.   60   ×6   360

(Total for Question 12 is 3 marks)

Turn over ▶

13 Annie sold

45 books at £1.20 each
34 candles at £1.50 each
some calendars at 90p each

She got a total of £150

Work out how many calendars Annie sold.

$$45 \times 1.20 = 54$$
$$34 \times 1.50 = \underline{51}$$

$$£105$$

$$£150 - £105 = £45$$

£45 for calendars. $\frac{45}{0.9} = \underline{\underline{50}}$

.......................50.......................

(Total for Question 13 is 4 marks)

14 Here is a 4-sided spinner.
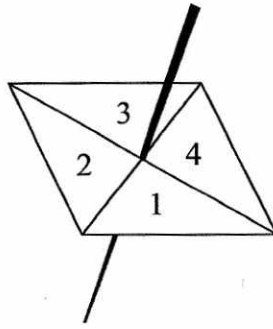
The table shows the probabilities that when the spinner is spun it will land on 1, on 3 and on 4

Number	1	2	3	4
Probability	0.2	0.3	0.4	0.1

The spinner is spun once.

(a) Work out the probability that the spinner will land on 2

$$1 - 0.2 - 0.4 - 0.1$$

.... 0.3
(1)

(b) Which number is the spinner least likely to land on?

.... 4
(1)

Jake is going to spin the spinner 60 times.

(c) Work out an estimate for the number of times the spinner will land on 1

60 x 0.2

.... 12
(2)

(Total for Question 14 is 4 marks)

Turn over ▶

15 Bert has 100 cards.
There is a whole number from 1 to 100 on each card.
No cards have the same number.

Bert puts a star on every card that has a multiple of 3 on it.
He puts a circle on every card that has a multiple of 5 on it.

Work out how many cards have both a star and a circle on them. *multiples of 15*

$$15, 30, 45, 60, 75, 90$$

6

(Total for Question 15 is 3 marks)

16 Write down the ratio of 450 grams to 15 grams.
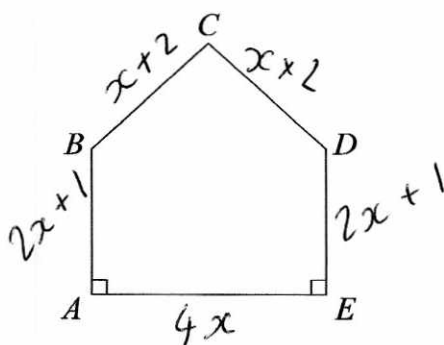Give your answer in its simplest form.

$$450 : 15$$
$$\div 15 \qquad \div 15$$

$$30 : 1$$

or $30g : 1g$ 30 : 1

(Total for Question 16 is 2 marks)

17 The diagram shows a pentagon.
The pentagon has one line of symmetry.

$AE = 4x$
$AB = 2x + 1$
$BC = x + 2$

All these measurements are given in centimetres.

The perimeter of the pentagon is 18 cm.

(a) Show that $10x + 6 = 18$

$$4x + 2x + 1 + 2x + 1 + x + 2 + x + 2 = 18$$
$$10x + 6 = 18$$

(3)

(b) Find the value of x.

$$10x + 6 = 18$$
$$ -6 -6$$
$$10x = 12$$
$$x = 1.2$$

$x = $ ....1.2........

(2)

(Total for Question 17 is 5 marks)

18 Trevor buys a boat.
The cost of the boat is £14 200 plus VAT at 20%

Trevor pays a deposit of £5000
He pays the rest of the cost in 10 equal payments.

Work out the amount of each of the 10 payments.

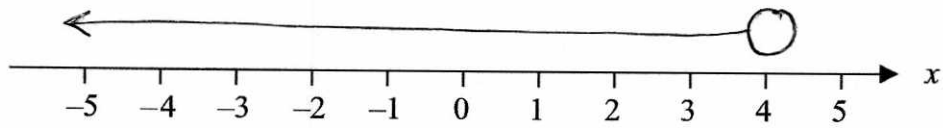$$14200 \times 1.2 = 17040$$

$$17040 - 5000 = 12040$$

$$\frac{12040}{10} = £1204$$

£ ....1204........

19 (a) On the number line, show the inequality $x < 4$

(2)

$3 < y \leqslant 7$ where y is an integer.

(b) Write down all the possible values of y.

.........4, 5, 6 and 7.........

(2)

(c) Solve $3x + 5 \geqslant x + 17$

$-x \qquad -x$

$2x + 5 \geqslant 17$

$\quad - 5 \qquad - 5$

$2x \geqslant 12$

$x \geqslant 6$

_____

.........$x \geqslant 6$.........

(3)

(Total for Question 19 is 7 marks)

20 (a) Write 7357 correct to 3 significant figures.

$$\underline{7360}$$
(1)

(b) Work out $\dfrac{\sqrt{17+4^2}}{7.3^2}$

Write down all the figures on your calculator display.

$$\underline{0.1077981356}$$
(2)

(Total for Question 20 is 3 marks)

21 Last year Jo paid £245 for her car insurance.
This year she has to pay £883 for her car insurance.

Work out the percentage increase in the cost of her car insurance.

$$\dfrac{change}{original} \times 100$$

$$\dfrac{883-245}{245} \times 100$$

$$260.4081633\%$$

$$\underline{260} \quad \%$$

(Total for Question 21 is 3 marks)

22 (a) Complete this table of values for $y = x^2 + x - 4$

x	-3	-2	-1	0	1	2	3
y	2	-2	-4	-4	-2	2	8

(2)

(b) On the grid, draw the graph of $y = x^2 + x - 4$ for values of x from -3 to 3
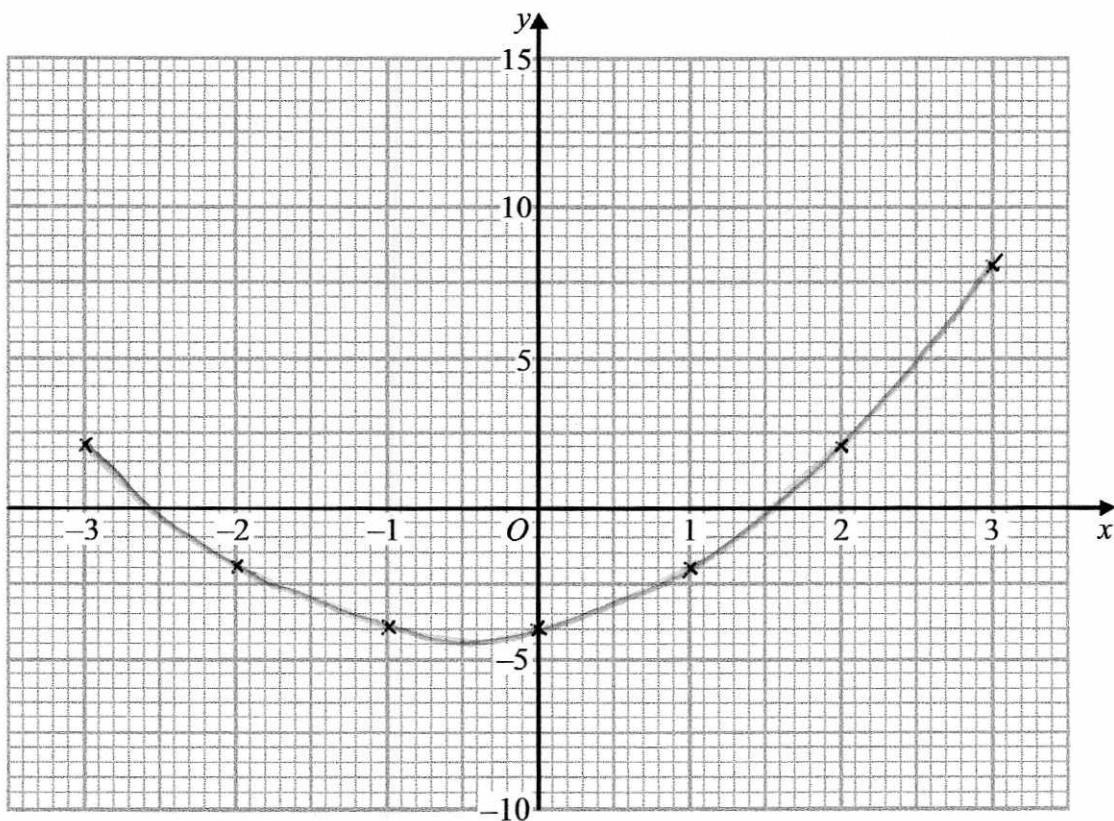
(2)

(c) Use the graph to estimate a solution to $x^2 + x - 4 = 0$
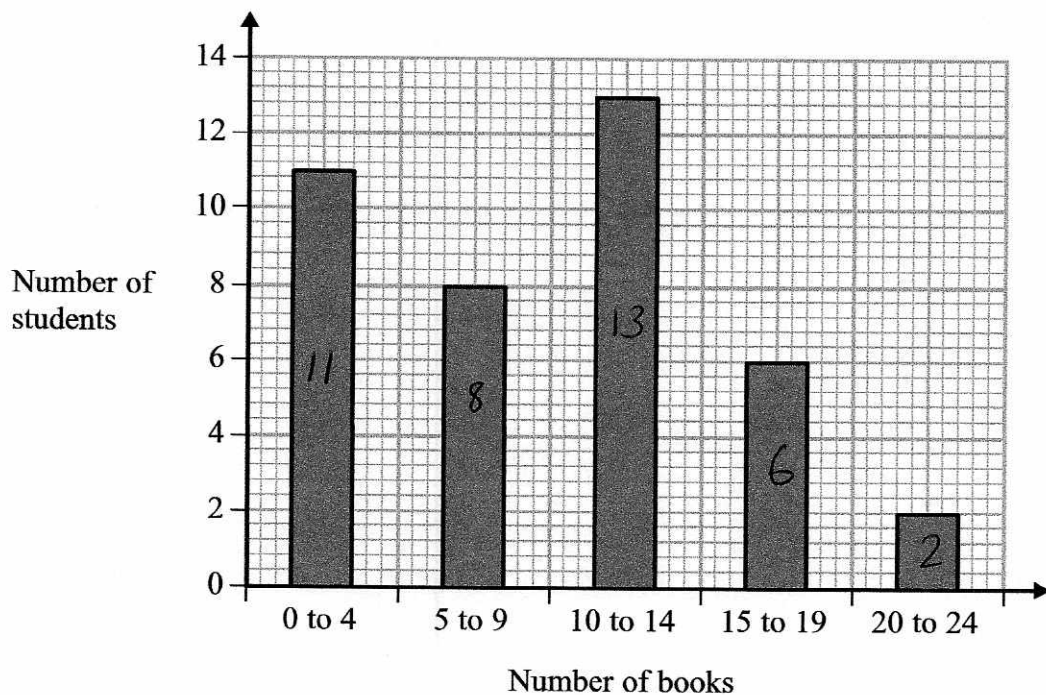
-2.6 or 1.6

(1)

(Total for Question 22 is 5 marks)

23 Fran asks each of 40 students how many books they bought last year.

The chart below shows information about the number of books bought by each of the 40 students.

(a) Work out the percentage of these students who bought 20 or more books.

$$\frac{2}{40} \times 100$$

........................5........................%

(2)

(b) Show that an estimate for the mean number of books bought is 9.5
You must show all your working.

Midpoint × frequency.

$$11 \times 2 = 22$$
$$8 \times 7 = 56$$
$$13 \times 12 = 156$$
$$6 \times 17 = 102$$
$$2 \times 22 = 44$$

$$\frac{22 + 56 + 156 + 102 + 44}{40} = 9.5$$

(4)

(Total for Question 23 is 6 marks)

24 Lara is a skier.

She completed a ski race in 1 minute 54 seconds.
The race was 475 m in length.

Lara assumes that her average speed is the same for each race.

(a) Using this assumption, work out how long Lara should take to complete a 700 m race.
Give your answer in minutes and seconds.

$$speed = \frac{distance}{time}$$

$$= \frac{475}{1.9}$$

$$= 250 \ m/min$$

1 min 54 secs
= 1.9 mins

$$time = \frac{distance}{speed}$$

$$= \frac{700}{250}$$

$$= 2.8 \ minutes$$

$$= 2 mins \ 48 \ seconds$$

............**2**........ minutes ....**48**.... seconds

(3)

Lara's average speed actually increases the further she goes.

(b) How does this affect your answer to part (a)?

.... It would take less time. ....

....

(1)

(Total for Question 24 is 4 marks)

25 *ABC* is a right-angled triangle.

B

x (H)

36 A

C 14 cm

(A)
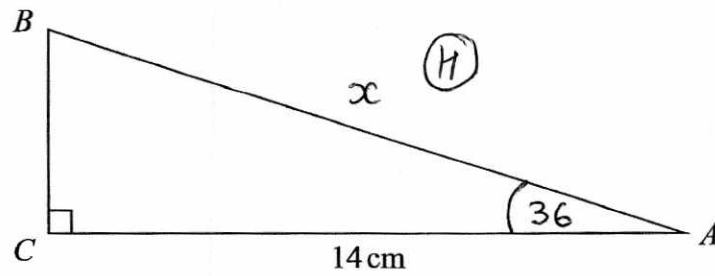
AC = 14 cm.

Angle *C* = 90°

size of angle *B* : size of angle *A* = 3 : 2

Work out the length of *AB*.

Give your answer correct to 3 significant figures.

$$\frac{90}{5} = 18$$

$$3 \times 18 = 54$$

$$2 \times 18 = 36$$

$$\cos \theta = \frac{A}{H}$$

$$\cos 36 = \frac{14}{x}$$

$$x = \frac{14}{\cos 36}$$

$$= 17.3 \, cm \quad 3sf$$

.......17.3.......cm

(Total for Question 25 is 4 marks)

26 Here are the first four terms of an arithmetic sequence.

$$5 \qquad 11 \qquad 17 \qquad 23$$

Write down an expression, in terms of n, for the nth term of the sequence.

$$6n \qquad 6 \quad 12 \quad 18 \quad 24$$

$6n - 1$

(Total for Question 26 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS