Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

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

Time 1 hour 30 minutes

Paper reference **1MA1/1H**

Mathematics

PAPER 1 (Non-Calculator)
Higher Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.
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 not be used.**

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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P64630A

E:1/1/1/1/1/1/

P 6 4 6 3 0 A 0 1 2 4

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 (a) Work out 3.67×4.2

.....

(3)

(b) Work out $59.84 \div 1.6$

.....

(3)

(Total for Question 1 is 6 marks)

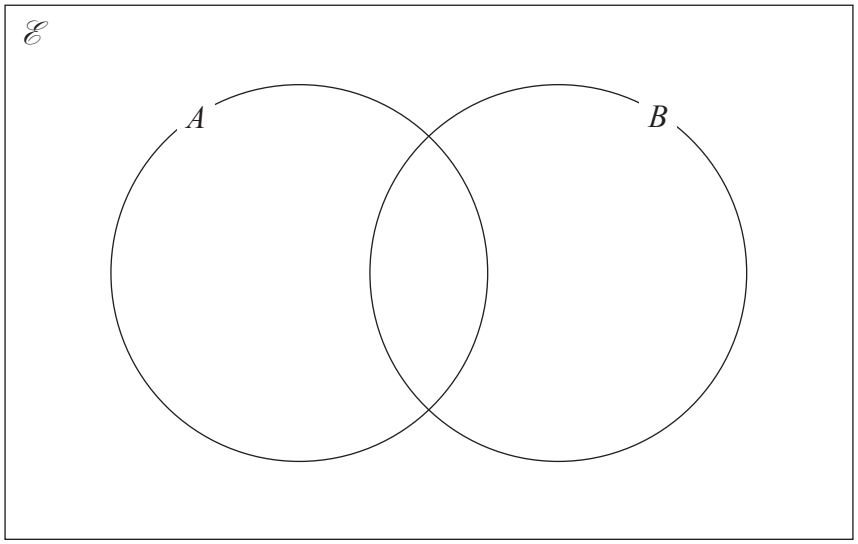
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

2 $\mathscr{E}$ = {even numbers less than 19}
A = {6, 12, 18}
B = {2, 6, 14, 18}

Complete the Venn diagram for this information.



(Total for Question 2 is 3 marks)

3 Work out $4\frac{1}{5} - 2\frac{2}{3}$

Give your answer as a mixed number.

.....

(Total for Question 3 is 3 marks)

4 At the end of 2017

the value of Tamara's house was £220 000
the value of Rahim's house was £160 000

At the end of 2019

the value of Tamara's house had decreased by 20%
the value of Rahim's house had increased by 30%

At the end of 2019, whose house had the greater value?
You must show how you get your answer.

(Total for Question 4 is 4 marks)

5 Rosie, Matilda and Ibrahim collect stickers.

$$\underset{\text{Rosie has}}{\text{number of stickers}} : \underset{\text{Matilda has}}{\text{number of stickers}} : \underset{\text{Ibrahim has}}{\text{number of stickers}} = 4:7:15$$

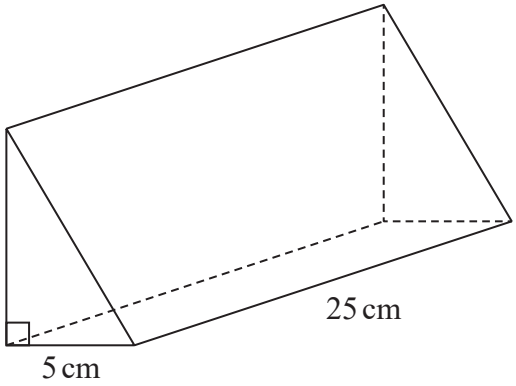
Ibrahim has 24 more stickers than Matilda.

Ibrahim has more stickers than Rosie.
How many more?

.....

(Total for Question 5 is 3 marks)

6 The diagram shows a prism.



The cross section of the prism is a right-angled triangle.
The base of the triangle has length 5 cm

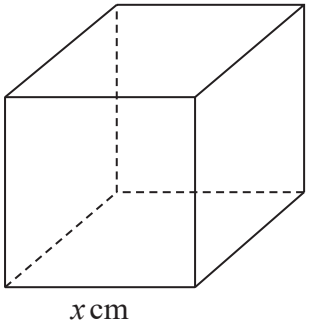
The prism has length 25 cm
The prism has volume 750 cm^3

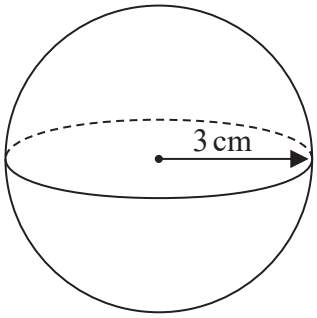
Work out the height of the prism.

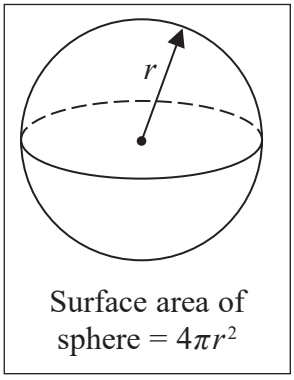
..... cm

(Total for Question 6 is 3 marks)

7 The diagram shows a cube with edges of length x cm and a sphere of radius 3 cm.







The surface area of the cube is equal to the surface area of the sphere.

Show that $x = \sqrt{k\pi}$ where k is an integer.

(Total for Question 7 is 4 marks)

8 Solve $x^2 = 5x + 24$

.....

(Total for Question 8 is 3 marks)

9 (a) Write down the value of 7^0

.....

(1)

(b) Find the value of $3 \times 3^6 \times 3^{-6}$

.....

(1)

(c) Find the value of 2^{-4}

.....

(1)

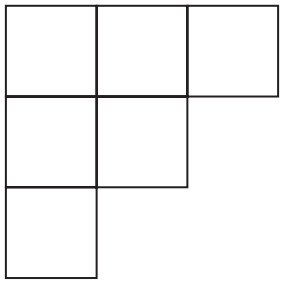
(d) Find the value of $27^{\frac{1}{3}}$

.....

(1)

(Total for Question 9 is 4 marks)

10 The diagram shows a shape made from 6 identical squares.



The total area of the shape is 5406 cm^2

(a) Find an estimate for the length of one side of each square.
Give your answer correct to the nearest whole number.

..... cm

(3)

(b) Is your answer to part (a) an underestimate or an overestimate?
You must give a reason for your answer.

.....

.....

.....

(1)

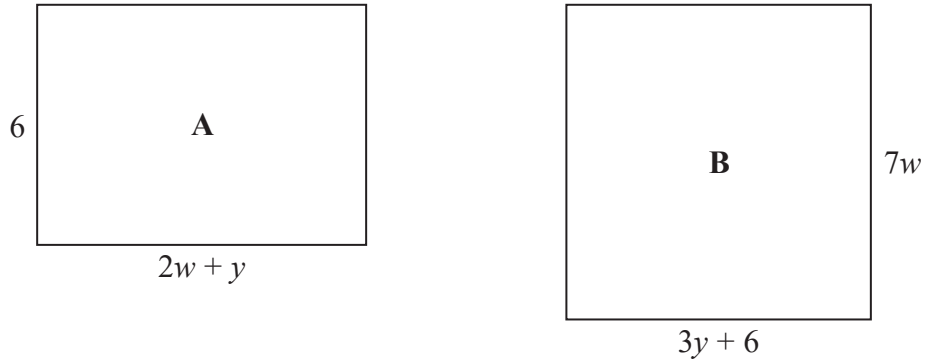
(Total for Question 10 is 4 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

11 The diagram shows two rectangles, **A** and **B**.



All measurements are in centimetres.

The area of rectangle **A** is equal to the area of rectangle **B**.

Find an expression for y in terms of w.

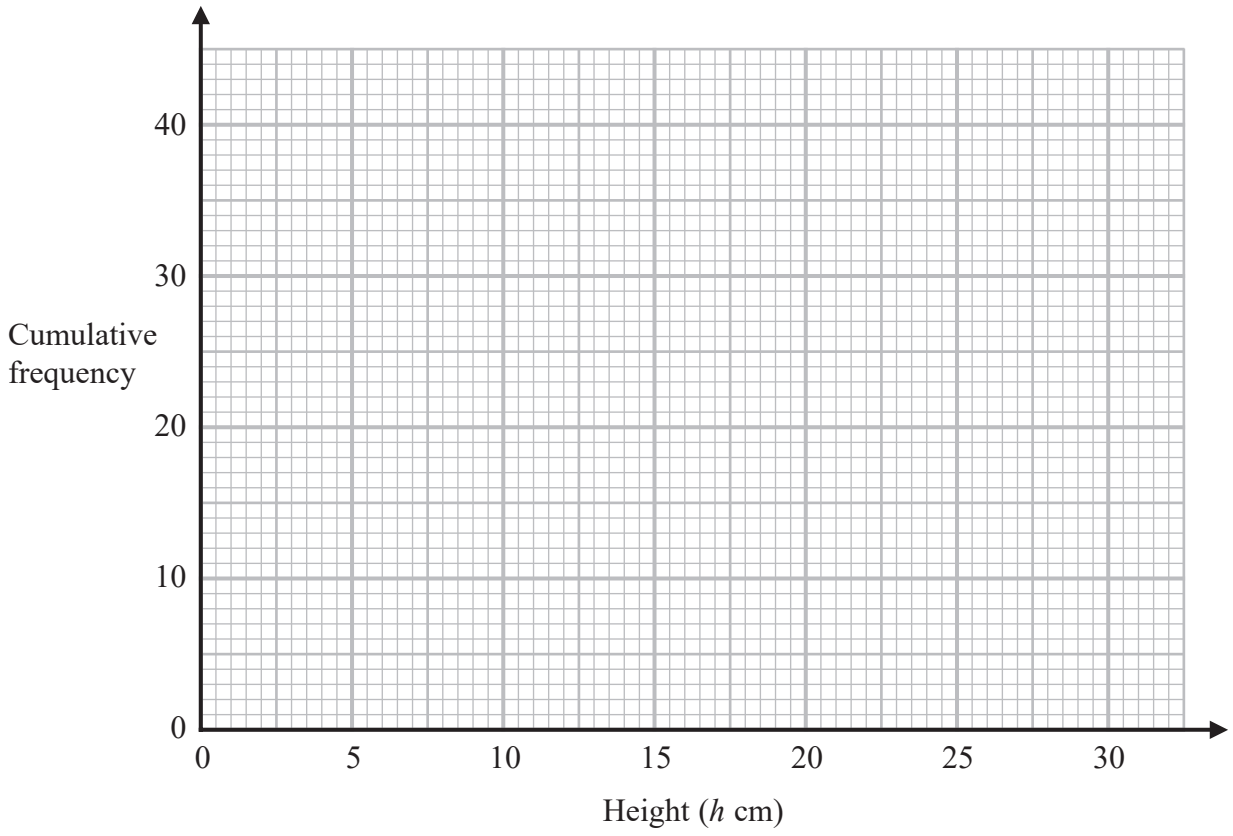
.....

(Total for Question 11 is 4 marks)

12 The cumulative frequency table gives information about the heights, in cm, of 40 plants.

Height (h cm)	Cumulative Frequency
$0 < h \leqslant 5$	4
$0 < h \leqslant 10$	11
$0 < h \leqslant 15$	24
$0 < h \leqslant 20$	34
$0 < h \leqslant 25$	38
$0 < h \leqslant 30$	40

(a) On the grid, draw a cumulative frequency graph for this information.



(2)

(b) Use the graph to find an estimate for the median height of the plants.

..... cm

(1)

(Total for Question 12 is 3 marks)

13 Ted is trying to change $0.\dot{4}\dot{3}$ to a fraction.

Here is the start of his method.

$$x = 0.\dot{4}\dot{3}$$

$$10x = 4.\dot{3}\dot{4}$$

$$10x - x = 4.\dot{3}\dot{4} - 0.\dot{4}\dot{3}$$

Evaluate Ted's method so far.

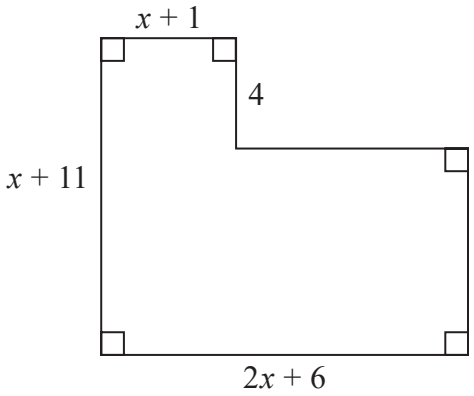
.....

.....

.....

(Total for Question 13 is 1 mark)

14 Here is a shape with all its measurements in centimetres.



The area of the shape is A cm^2

Show that $A = 2x^2 + 24x + 46$

(Total for Question 14 is 3 marks)

15 Show that $\frac{4x+3}{2x}+\frac{3}{5}$ can be written in the form $\frac{ax+b}{cx}$ where a, b and c are integers.

(Total for Question 15 is 3 marks)

16 There are only 3 red counters and 5 yellow counters in a bag.

Jude takes at random 3 counters from the bag.

Work out the probability that he takes exactly one red counter.

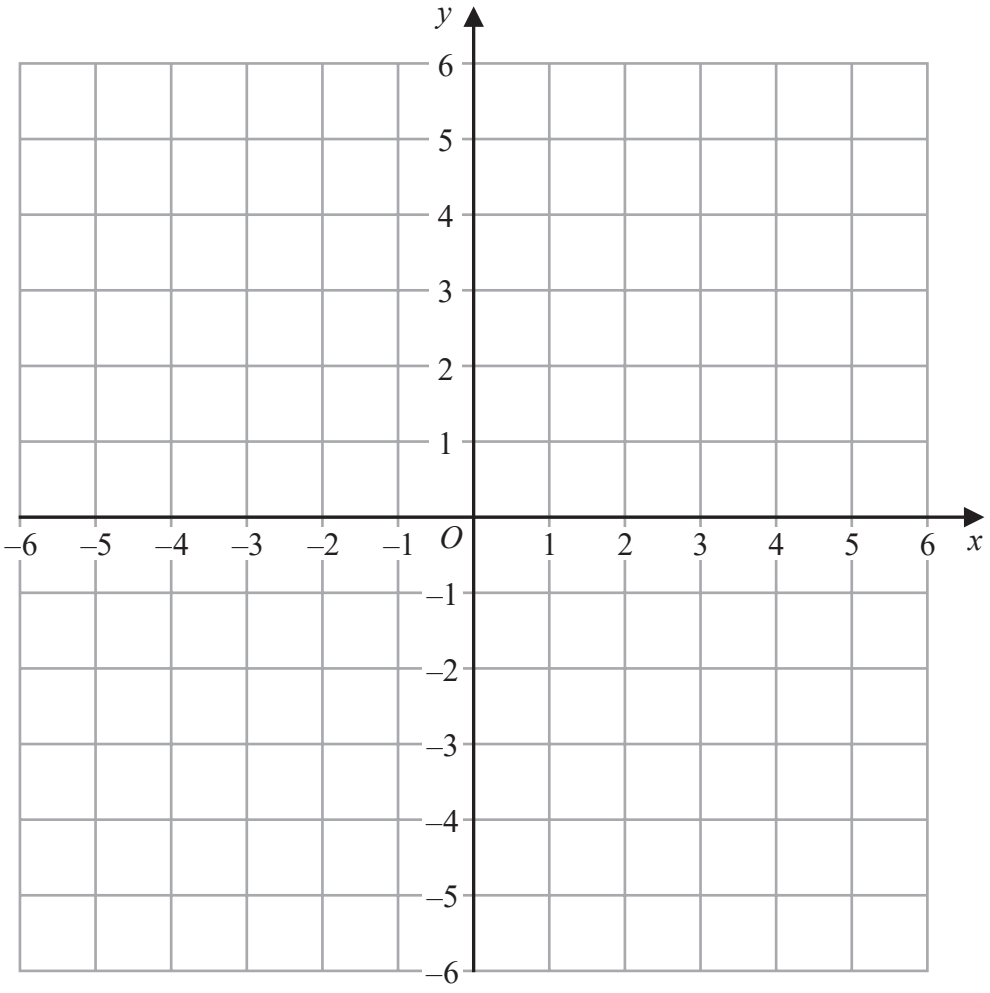
.....

(Total for Question 16 is 4 marks)

17 On the grid show, by shading, the region that satisfies all of these inequalities.

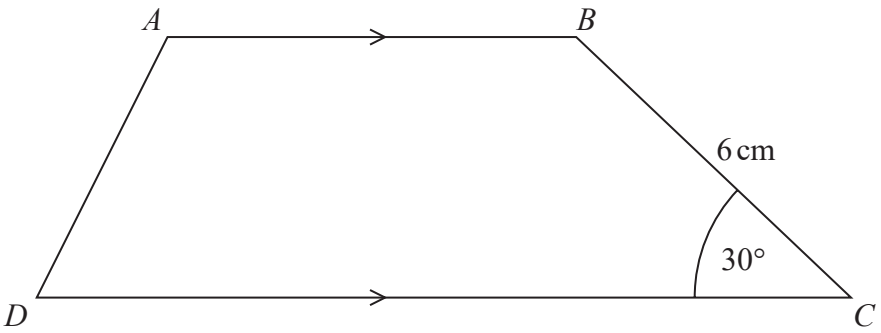
$$2y + 4 < x \qquad x < 3 \qquad y < 6 - 3x$$

Label the region **R**.



(Total for Question 17 is 3 marks)

18 Here is trapezium $ABCD$.



The area of the trapezium is $66\,cm^2$

the length of AB : the length of $CD = 2 : 3$

Find the length of AB.

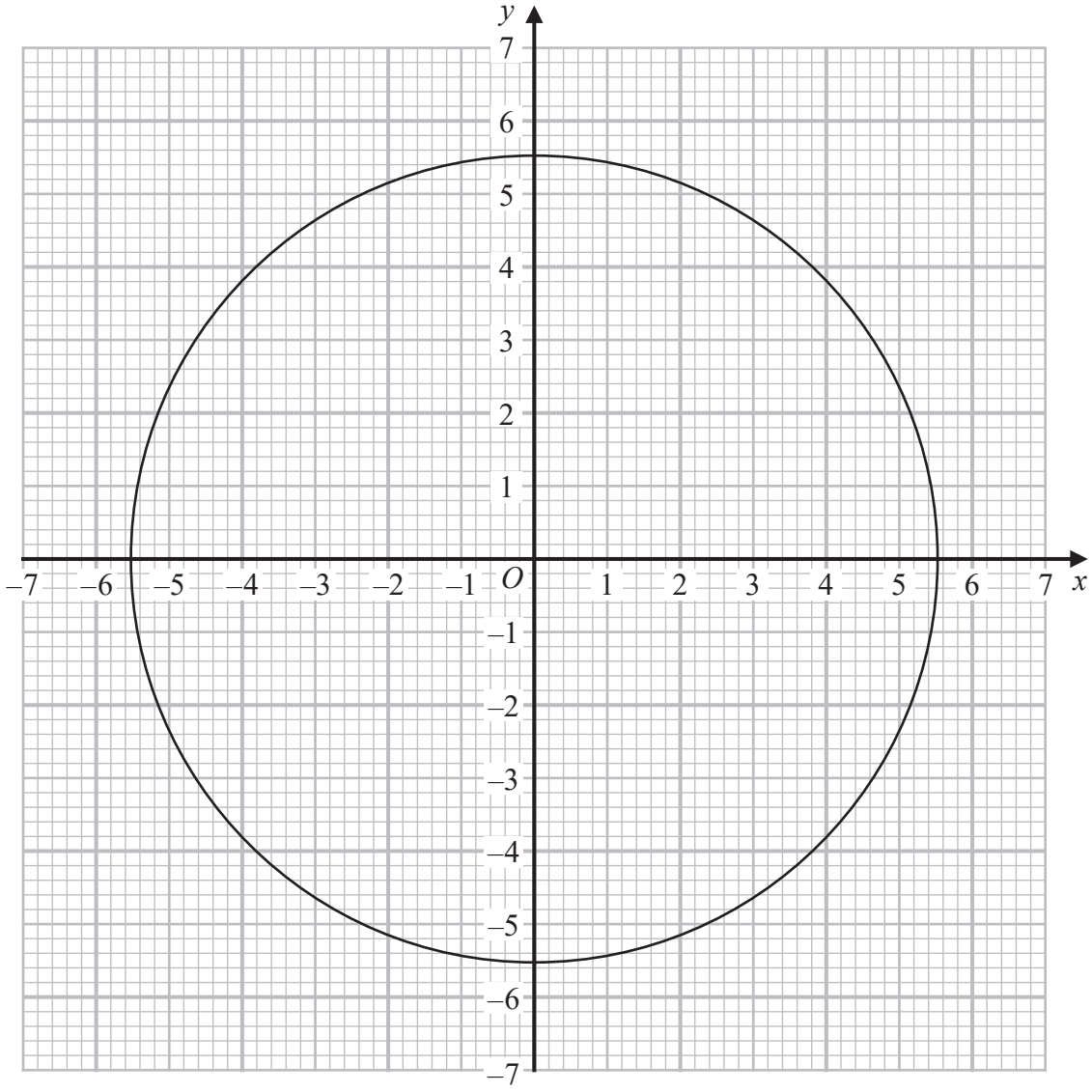
..... cm

(Total for Question 18 is 5 marks)

19 Show that $\frac{8+\sqrt{12}}{5+\sqrt{3}}$ can be written in the form $\frac{a+\sqrt{3}}{b}$, where a and b are integers.

(Total for Question 19 is 4 marks)

20 The diagram shows the graph of $x^2 + y^2 = 30.25$



Use the graph to find estimates for the solutions of the simultaneous equations

$$x^2 + y^2 = 30.25$$
$$y - 2x = 1$$

.....

(Total for Question 20 is 3 marks)

21 The functions f and g are such that

$$f(x) = 3x^2 + 1 \quad \text{for } x > 0 \qquad \text{and} \qquad g(x) = \frac{4}{x^2} \quad \text{for } x > 0$$

(a) Work out gf(1)

.....

(2)

The function h is such that $h = (fg)^{-1}$

(b) Find $h(x)$

.....

(4)

(Total for Question 21 is 6 marks)

22 Find the coordinates of the turning point on the curve with equation $y = 9 + 18x - 3x^2$
You must show all your working.

(..... , ...)

(Total for Question 22 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS

BLANK PAGE

BLANK PAGE

BLANK PAGE