Write your name here:

Surname:	Other Names:

Mathematics
Predicted Paper 1
(Non Calculator)
Foundation Tier
Time: 1 hour 30 minutes

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser

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

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.

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1 (a) Write these numbers in order of size.
Start with the smallest number.

52   102   25   120   55

25, 52, 55, 102, 120

(1)

(b) Write these numbers in order of size.
Start with the smallest number.

6   −2   0   −5   3

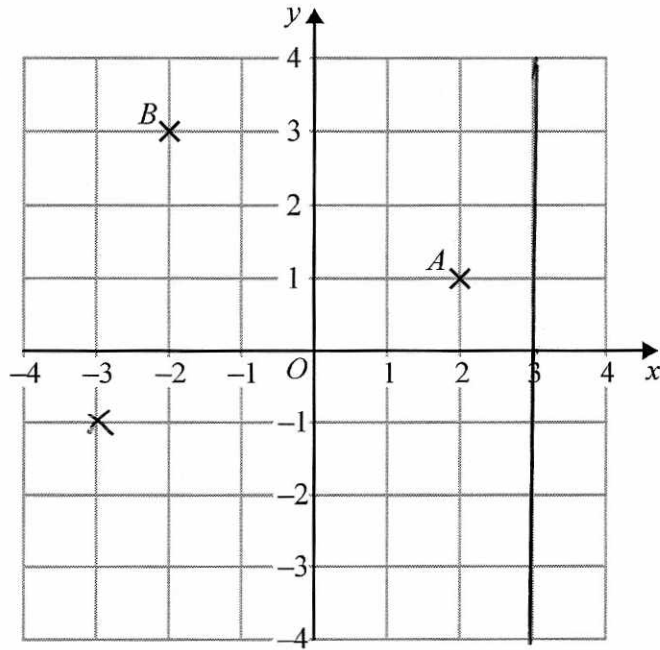*−5, −2, 0, 3, 6*

(1)

(c) Write these numbers in order of size.
Start with the smallest number.

0.630   0.633   0.603   0.600   0.060

0.06, 0.6, 0.603, 0.63, 0.633

(1)

(Total for Question 1 is 3 marks)

2

(a) Write down the coordinates of the point A.

($\underline{2}$, $\underline{1}$)

(1)

(b) Write down the coordinates of the point B.

($\underline{-2}$, $\underline{3}$)

(1)

(c) On the grid, mark with a cross (×) the point $(-3, -1)$.
   Label this point C.

(1)

(d) On the grid, draw the line $x = 3$

(1)

(Total for Question 2 is 4 marks)

3 (a) Simplify $m + m + m$

$3m$

(1)

(b) Simplify $9e - 2e$

$7e$

(1)

(c) Simplify $5 \times 3g$

$15g$

(1)

(Total for Question 3 is 3 marks)

4   (a) $L = 3a + 2c$

☐ ☐ ☐ $a = 5$

$c = 8$

Work out the value of L.

$3(5) + 2(8)$

$15 + 16$

$L = 31$

(2)

(b) Kirsty buys some buns.
She buys x packs of currant buns and y boxes of iced buns.

There are 6 currant buns in a pack of currant buns.
There are 8 iced buns in a box of iced buns.

Write down an expression, in terms of x and y, for the total
number of buns Kirsty buys.
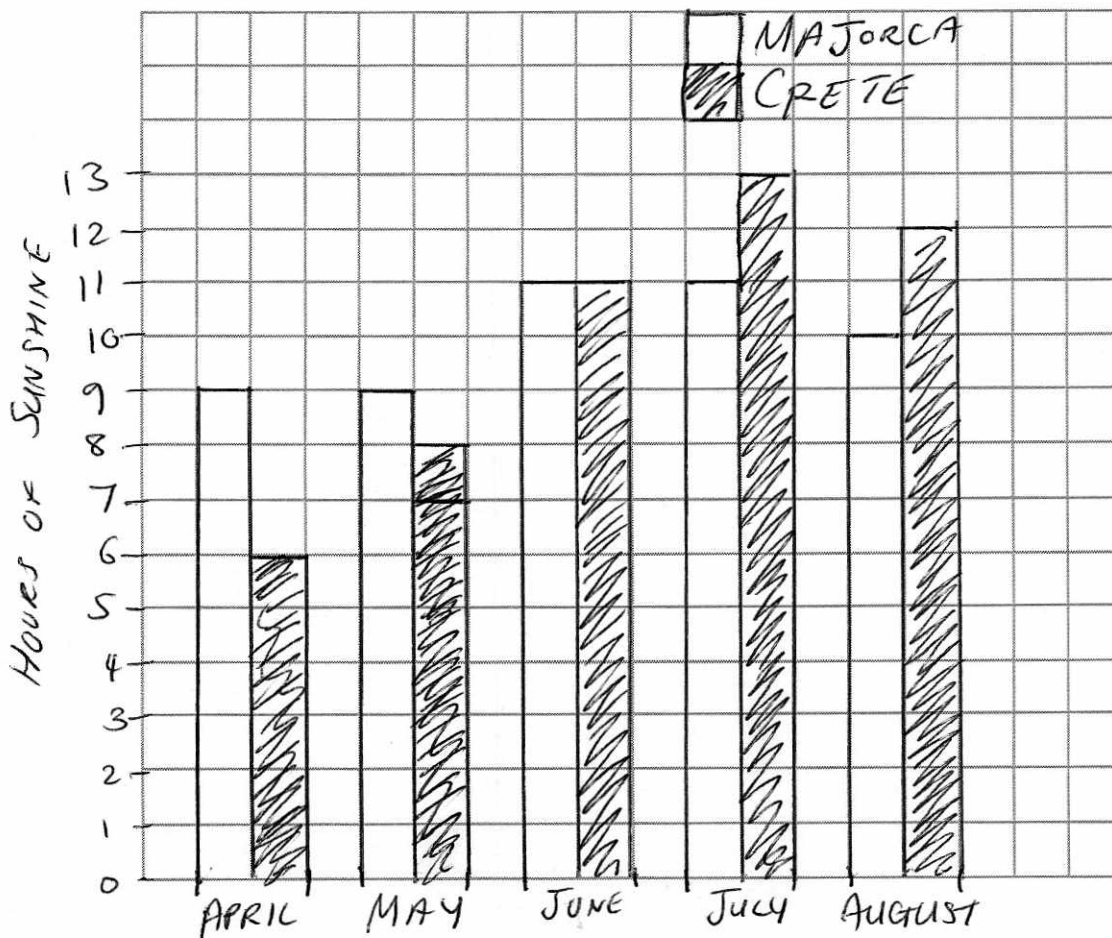
$6x + 8y$

(2)

(Total for Question 4 is 4 marks)

5 The table shows information about the average daily hours of sunshine in Majorca and in Crete for each of five months.

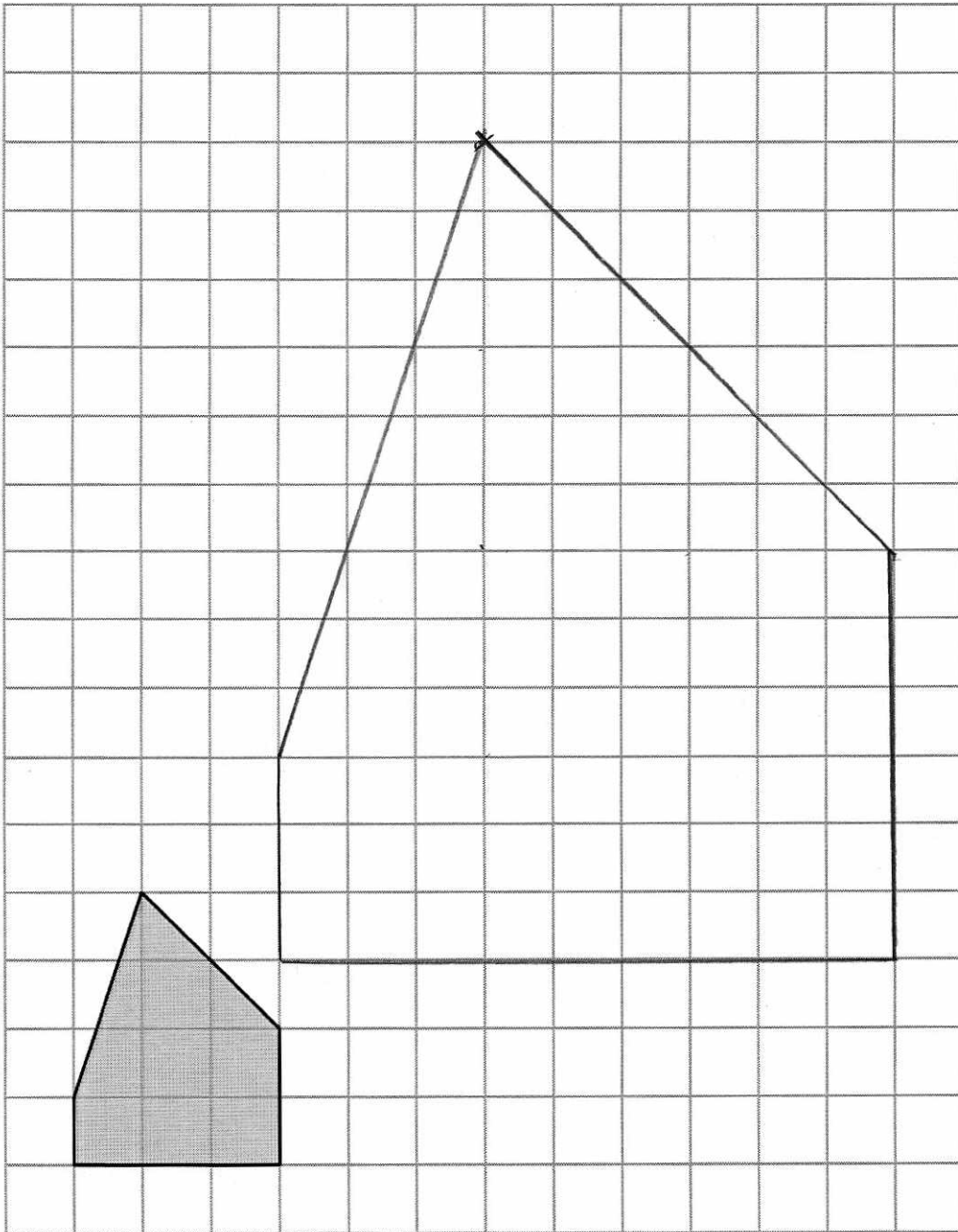|	April	May	June	July	August
Majorca	9	9	11	11	10
Crete	6	8	11	13	12

Simon wants to compare this information.

On the grid, draw a suitable diagram or chart.
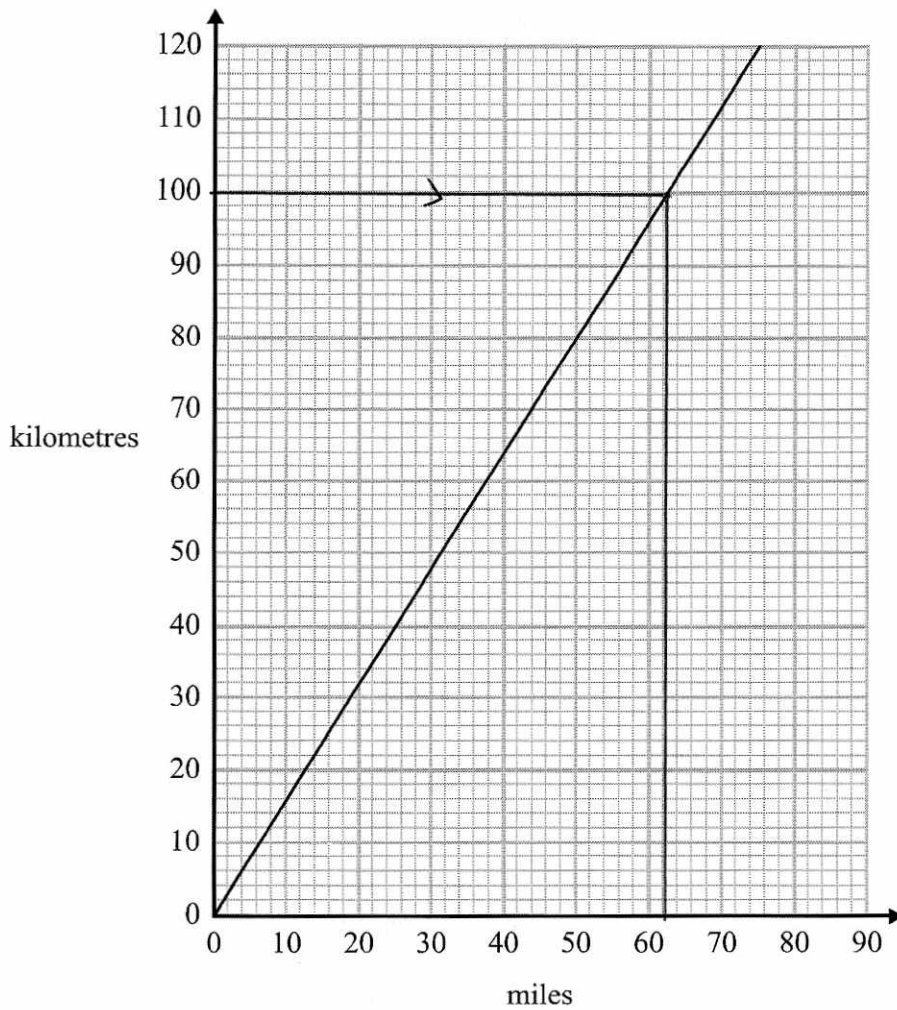

(Total for Question 5 is 4 marks)

6

On the grid, draw an enlargement of the shaded shape with scale factor 3

(Total for Question 6 is 2 marks)

7   You can use this graph to change between miles and kilometres.

The distance from Paris to London is 280 miles.
The distance from Paris to Amsterdam is 500 kilometres.

Is Paris further from London or further from Amsterdam?
You must show how you get your answer.

$100km = 62$ miles
$\times 5 \qquad\qquad \times 5$

$500km = 310$ miles

Paris to Amsterdam is further

8 Ria is going to buy a caravan.
The total cost of the caravan is £7000 **plus** VAT at 20%.

Ria pays a deposit of £3000
She pays the rest of the total cost in 6 equal monthly payments.

Work out the amount of each monthly payment.

$$7000 \div 10 = 700$$

$$700 = 10\%.$$
$$1400 = 20\%.$$

$$7000 + 1400 = 8400$$

$$8400 - 3000 = 5400$$

$$\frac{5400}{6} = 900$$

£ 900

(Total for Question 8 is 4 marks)

9 Steve wants to put a hedge along one side of his garden.

He needs to buy 27 plants for the hedge.
Each plant costs £5.54

Steve has £150 to spend on plants for the hedge.

Does Steve have enough money to buy all the plants he needs?

	500	50	4
20	10 000	1000	80
7	3500	350	28

```
  1 0 0 0 0
    3 5 0 0
    1 0 0 0
      3 5 0
        8 0
        2 8
  1 4 9 5 8
```

£149.58

Yes.

(Total for Question 9 is 4 marks)

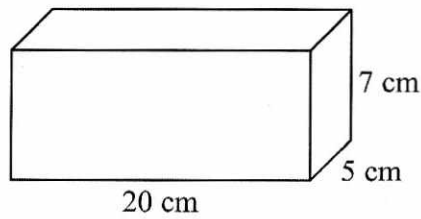**10** The diagram shows a cuboid.
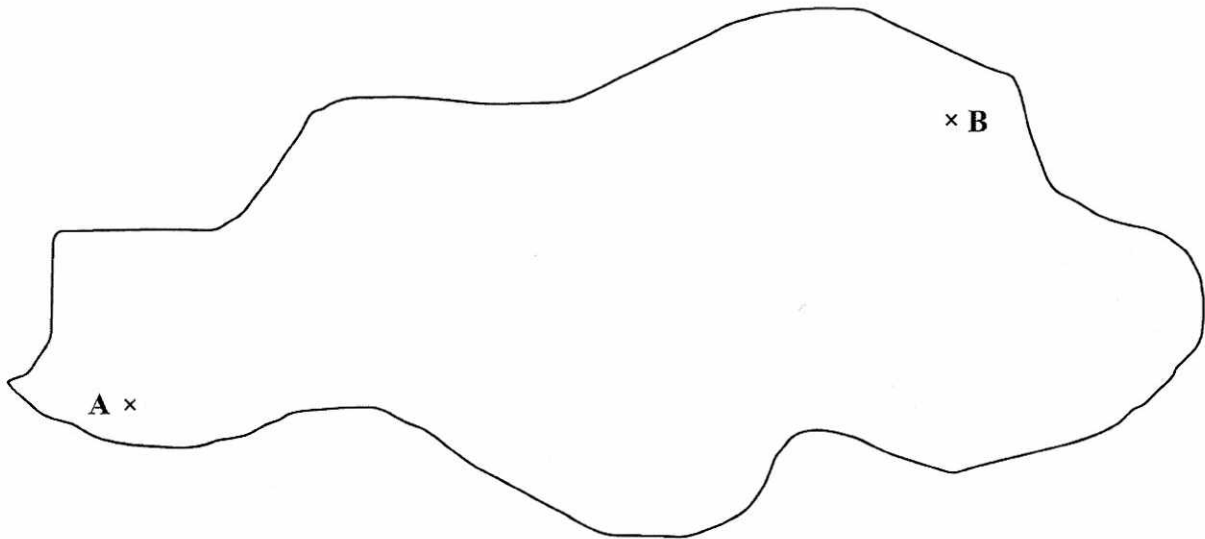

Diagram **NOT** accurately drawn

7 cm

5 cm

20 cm

Work out the volume of the cuboid.

$$20 \times 5 \times 7 = 700 \text{ cm}^3$$

$\underline{700 \text{cm}^3}$

(Total for Question 10 is 3 marks)

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11 The map shows two airports, **A** and **B**.

× **B**

A ×

Scale: 1 cm to 100 km

A plane flies directly from **A** to **B**.
The average speed of the plane is 300 km/h.

How long does the plane take to fly from **A** to **B**?
You must show all your working.

11.5 cm [×100]

1150 km

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}} = \frac{1150}{300} = \frac{23}{6} = 3\frac{5}{6}$$

$3\frac{5}{6}$ hours

(Total for Question 11 is 3 marks)

12 Suha has a full 600 ml bottle of wallpaper remover.
She is going to mix some of the wallpaper remover with water.

Here is the information on the label of the bottle.

Wallpaper remover
600 ml
Mix $\frac{1}{4}$ of the wallpaper remover with 4500 ml of water

Suha is going to use 750 ml of water.

How many millilitres of wallpaper remover should Suha use?
You must show your working.

$\frac{1}{4}$ of 600 = 150 ml
wallpaper.   water
150 ml   =   4500 ml
÷6   ÷6
25 ml   =   750 ml.

$\frac{4500}{750} = 6$

.......**25**....... ml

(Total for Question 12 is 4 marks)

13 The table gives information about the results of the matches a football team played.

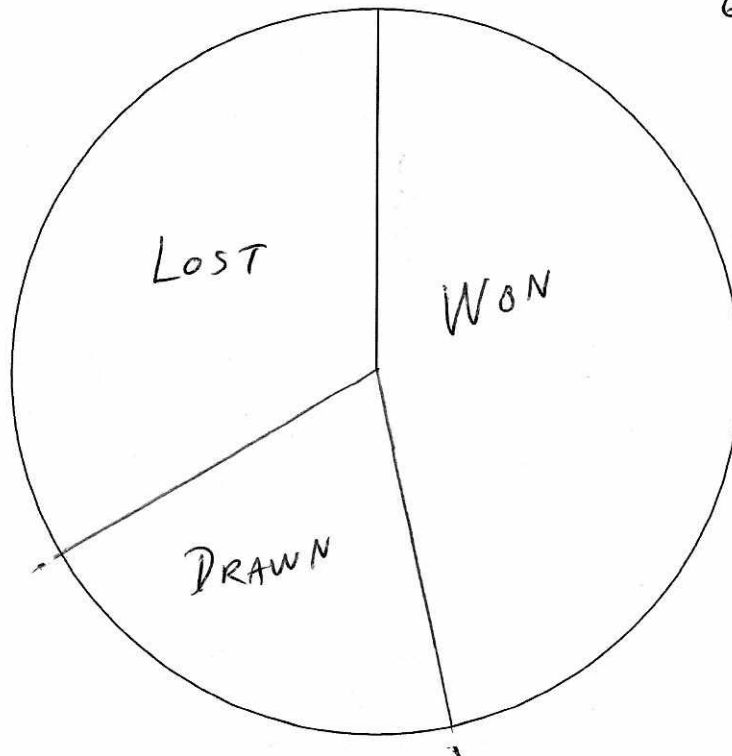| Result	Frequency	Degrees
Won	28 ×6	168
Drawn	12 ×6	72
Lost	20 ×6	120

60

28
× 6
‾‾‾
1 6 8

Draw an accurate pie chart to show this information.

$$\frac{360}{60} = 6°$$

(Total for Question 13 is 4 marks)

14 (a) Simplify $6g - 5h - 4g + 2h$

$2g - 3h$

(2)

(b) Factorise $y^2 - 2y$

$y(y - 2)$

(1)

(c) Simplify fully $\dfrac{p^3 \times p^4}{p^2}$

$\dfrac{p^7}{p^2}$

p^5

(2)

(Total for Question 14 is 5 marks)

15 John buys some boxes of pencils and some packets of pens for people to use at a conference.

There are 40 pencils in a box.
There are 15 pens in a packet.

John gives one pencil and one pen to each person at the conference.
He has no pencils left.
He has no pens left.

How many boxes of pencils and how many packets of pens did John buy?

LCM of 40 and 15

40   80   120

15   30   45   60   75.   90   105   120

_____3_____ boxes of pencils

_____8_____ packets of pens

(Total for Question 15 is 3 marks)

16 Rachel bought a packet of 60 balloons.

$\frac{1}{10}$ of the balloons were yellow.

$\frac{3}{5}$ of the balloons were red.

The rest of the balloons were blue.

How many of the balloons were blue?

$$\frac{1}{10} \text{ of } 60 = \frac{60}{10} = 6$$

$$\frac{3}{5} \text{ of } 60 = \frac{60}{5} \times 3 = 12 \times 3 = 36$$

$$60 - 6 - 36$$

$$60 - 42$$

........................*18*........................ balloons

(Total for Question 16 is 3 marks)

17 Karl wants to raise money for charity.
He designs a game for people to play.

Karl uses a fair 10-sided dice for the game.
The dice is numbered from 1 to 10

Each person will roll the dice once.
A person wins the game if the dice lands on a multiple of 4   4 or 8

Ali plays the game once.

(a) Work out the probability that Ali will win the game.

$$\frac{2}{10}$$

$$\frac{2}{10}$$

(2)

Each person pays 30p to play the game once.
The prize for a win is £1

Karl thinks that the game will be played 100 times.

(b) Work out an estimate for how much money Karl will raise for charity.

$$30p \times 100 = 3000p = £30$$

$$\frac{2}{10} = \frac{20}{100} \quad win$$

$$20 \times 1 = £20$$

$$30 - 20 = 10 \qquad \underline{£10}$$

(3)

(Total for Question 17 is 5 marks)

18 (a) Work out $\frac{1}{7} \times \frac{2}{3}$

$$\frac{2}{21}$$
(1)

(b) Work out $\frac{3}{5} - \frac{1}{3}$

$$\frac{3 \times 3}{3 \times 5} - \frac{1 \times 5}{3 \times 5}$$

$$\frac{9}{15} - \frac{5}{15} = \frac{4}{15}$$

$$\frac{4}{15}$$
(2)

(Total for Question 18 is 3 marks)

19

<table>
<tr><td colspan="1">Competition

a prize every 2014 seconds</td></tr>
</table>

2600

In a competition, a prize is won every 2014 seconds.

Work out an estimate for the number of prizes won in 24 hours.
You must show your working.

20

$$\frac{20 \times 60 \times 60}{2000}$$

1 hour = 60 Mins
1 min = 60 secs

72000
2000

36

If they asked... underestimate because
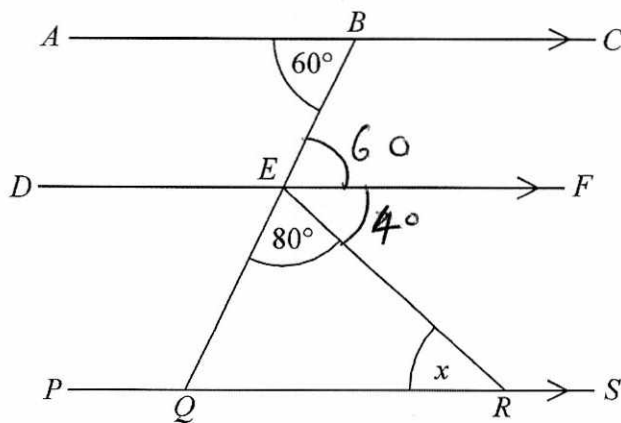we rounded 24 down to 20.

(Total for Question 19 is 4 marks)

20

A ———————————— B ————————→ C   Diagram **NOT**
60°   accurately drawn

D ——————— E ————————→ F
60
80° 4°

P ————————————— x ———→ S
Q   R

ABC, *DEF* and *PQRS* are parallel lines.
BEQ is a straight line.

Angle *ABE* = 60°
Angle *QER* = 80°

Work out the size of the angle marked *x*.
Give reasons for each stage of your working.

$BEF = 60°$ (Alternate angles are equal)

$FER = 180 - 60 - 80 = 40$ (Angles on a straight line add to 180°)

$x = 40°$ (Alternate angles are equal)

(**Total for Question 20 is 4 marks**)
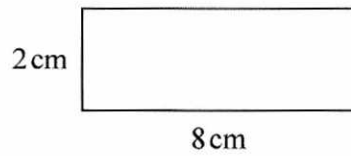
21 Here is a rectangle.

2 cm

8 cm

Diagram **NOT**
accurately drawn

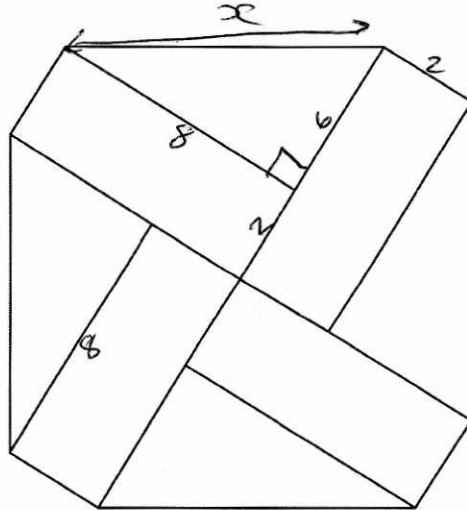The 8-sided shape below is made from 4 of these rectangles and 4 congruent right-angled triangles.

Diagram **NOT**
accurately drawn

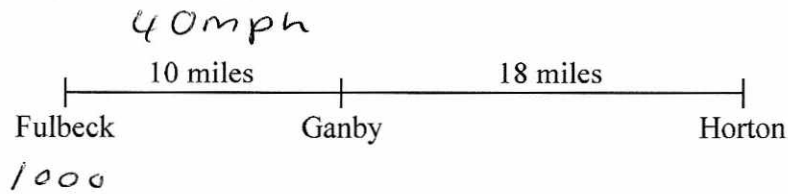Work out the perimeter of the 8-sided shape.
You must show all your working.

$$6^2 + 8^2 = x^2$$
$$36 + 64 = x^2$$
$$100 = x^2$$
$$x = 10$$

Perimeter = 4 (10) + 4(2)

= 48 cm

48 cm

(Total for Question 21 is 5 marks)

22 The distance from Fulbeck to Ganby is 10 miles.
The distance from Ganby to Horton is 18 miles.

40mph

|← 10 miles →|← 18 miles →|

Fulbeck   Ganby   Horton

10 00

Raksha is going to drive from Fulbeck to Ganby.
Then she will drive from Ganby to Horton.

Raksha leaves Fulbeck at 10 00
She drives from Fulbeck to Ganby at an average speed of 40mph.

Raksha wants to get to Horton at 10 35

Work out the average speed Raksha must drive at from Ganby to Horton.

To Ganby : Time = $\dfrac{Distance}{Speed}$

$= \dfrac{10}{40} = \dfrac{1}{4}$ (of an hour)

$= 15$ mins

$10:15 \rightarrow 10:35 = \underline{20\ mins}$ $\left(\dfrac{1}{3}\ \text{of an hour}\right)$

To Horton

Speed $= \dfrac{Distance}{Time}$

$= \dfrac{18}{1/3} = 18 \times 3 = 54$

_____54_____ mph

(Total for Question 22 is 3 marks)