A

AQA

Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

GCSE MATHEMATICS

F

Foundation Tier   Paper 1 Non-calculator

8300/1F

Thursday 25 May 2017   Morning

Time allowed: 1 hour 30 minutes

At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.

[Turn over]

For this paper you must have:
- **mathematical instruments**

You must NOT use a calculator.

INSTRUCTIONS

- **Use black ink or black ball-point pen. Draw diagrams in pencil.**

- **Answer ALL questions.**

- **You must answer the questions in the spaces provided. Do not write on blank pages.**

- **Do all rough work in this book. Cross through any work you do not want to be marked.**

INFORMATION

- The marks for questions are shown in brackets.

- The maximum mark for this paper is 80.

- You may ask for more answer paper, tracing paper and graph paper. These must be tagged securely to this answer book.

ADVICE
- In all calculations, show clearly how you work out your answer.

DO NOT TURN OVER UNTIL TOLD TO DO SO

Answer ALL questions in the spaces provided.

1 **How many minutes are there in $3\frac{1}{2}$ hours?**

Circle your answer. [1 mark]

180.5   210   330   350

2 **Work out $\frac{1}{4}$ + 0.5**

Circle your answer. [1 mark]

0.30   0.6   0.75   0.9

3 **Which of these shapes has the most sides?**

Circle your answer. **[1 mark]**

Hexagon **Octagon**

Rhombus **Trapezium**

4 **Solve** $x - 3 = 0$

Circle your answer. **[1 mark]**

$x = -3$ $x = 0$

$x = \dfrac{1}{3}$ $x = 3$

[Turn over]

5   **Work out 58 × 73 [3 marks]**

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

3

[Turn over]

0 7

6   500 people are asked if they drink coffee.

$\frac{9}{10}$ say Yes.

20% of the people who say Yes drink at least three cups each day.

6 (a)   Complete the frequency tree on page 11.
[4 marks]

6 (b)   What fraction of the 500 people drink at least three cups of coffee each day?

Give your answer in its simplest form. **[2 marks]**

Answer _____

[Turn over]

BLANK PAGE

At least three cups each day

Drink coffee

Yes

No

Yes

No

500
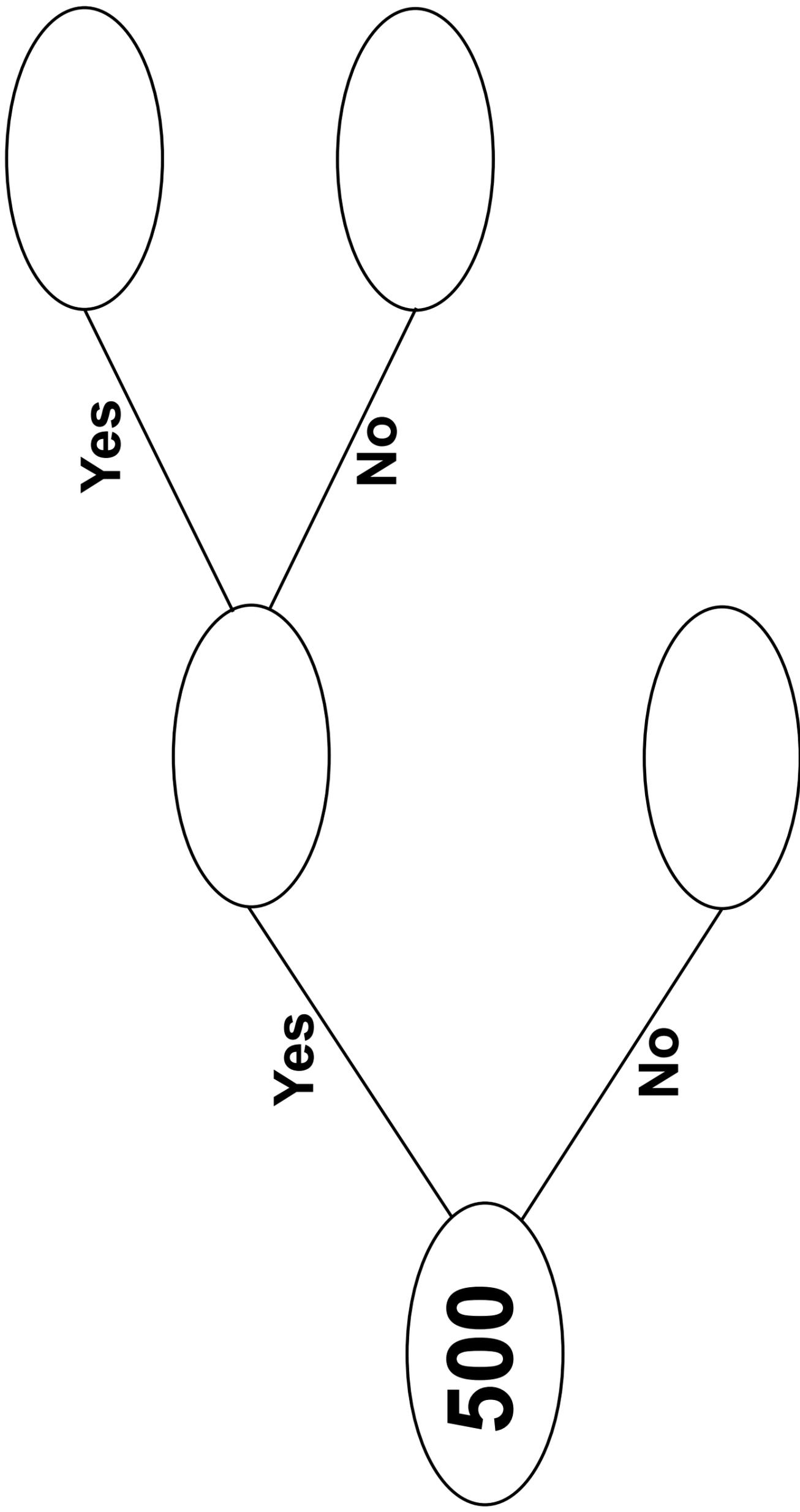
7   By rounding each number to the nearest 10,

estimate the answer to $\dfrac{61 \times 47}{102}$

You MUST show your working.
[2 marks]

_____

_____

_____

_____

_____

Answer _____

2

BLANK PAGE

8   **Nadia has £5 to buy pencils and rulers.**

PRICES

Pencils   8 p each

Rulers   30 p each

She says,

"I will buy 15 pencils.

Then I will buy as many rulers as possible.

With my change I will buy more pencils."

How many pencils and how many rulers does she buy?
[6 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____ pencils, _____ rulers

[Turn over]

9 **Work out 25.68 ÷ 12 [2 marks]**

_____

_____

_____

_____

_____

_____

Answer _____

2

16

10   **Work out $\dfrac{3}{8} \times 11$**

Give your answer as a mixed number. [2 marks]

_____

_____

_____

_____

Answer _____

2

[Turn over]

**11** **A triangle has perimeter 32 cm**

Not drawn accurately.
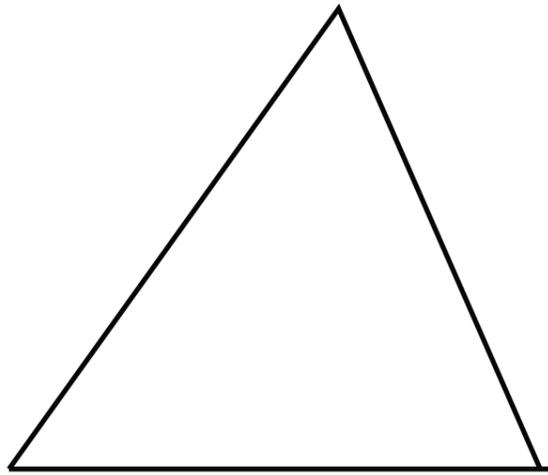
A square has perimeter 40 cm

Not drawn accurately.
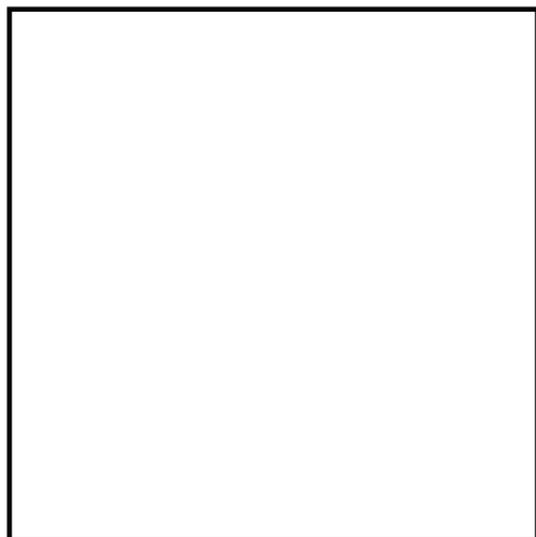
19

Two sides of the shapes are put together to make a pentagon.

Not drawn accurately

[Turn over]

20

Work out the perimeter of the pentagon. [4 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____
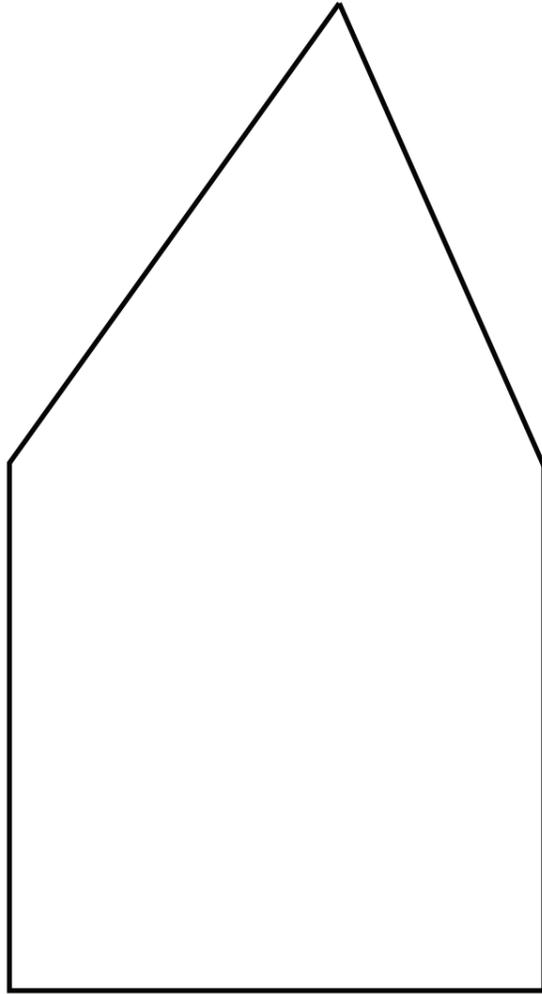
Answer _____ **cm**

BLANK PAGE

[Turn over]

12   A football team has P points.

$P = 3W + D$

W is the number of wins

D is the number of draws

12 (a)   A team has 6 wins and 2 draws.

How many points does the team have? [1 mark]

_____

_____

Answer _____

12 (b) **After 33 games a different team has 53 points.**

11 games were draws.

How many games has this team LOST? [4 marks]

_____

_____

_____

_____

_____

_____

_____

Answer _____

5

[Turn over]

13   **2 + 0 + 1 + 7 = 10**

Make the following calculations correct.

Use only the symbols +, −, ✕, ÷ and ( ) [3 marks]

2   0   1   7   =   −4

2   0   1   7   =   0

2   0   1   7   = 2^4

14   **A number is picked at random from the first four PRIME numbers.**

A number is picked at random from the first four SQUARE numbers.

The two numbers are added to get a score.

[Turn over]

14 (a) **Complete the table. [4 marks]**

Square numbers

Prime numbers

+	1	4	9	
2				
3			12	
7				

14 (b) **What is the probability that the score is a PRIME number?**
[1 mark]

Answer _____

5

[Turn over]

15   **In a school show,**

girls : boys = 1 : 1

girls who sing : girls who do not sing = 1 : 2

8 girls SING in the show.

How many students are in the show altogether? [3 marks]

_____

_____

_____

_____

_____

_____

_____

Answer _____

3

[Turn over]

16   *P* and *Q* are points on the line
$3x + 2y = 6$

16 (a)   Complete the coordinates of
P and *Q*. [2 marks]

_____

_____

_____

_____

_____

P (0,_____)   *Q* (_____ , 0)

16 (b) **Draw the line $3x + 2y = 6$ for values of x from –3 to 3**
[2 marks]
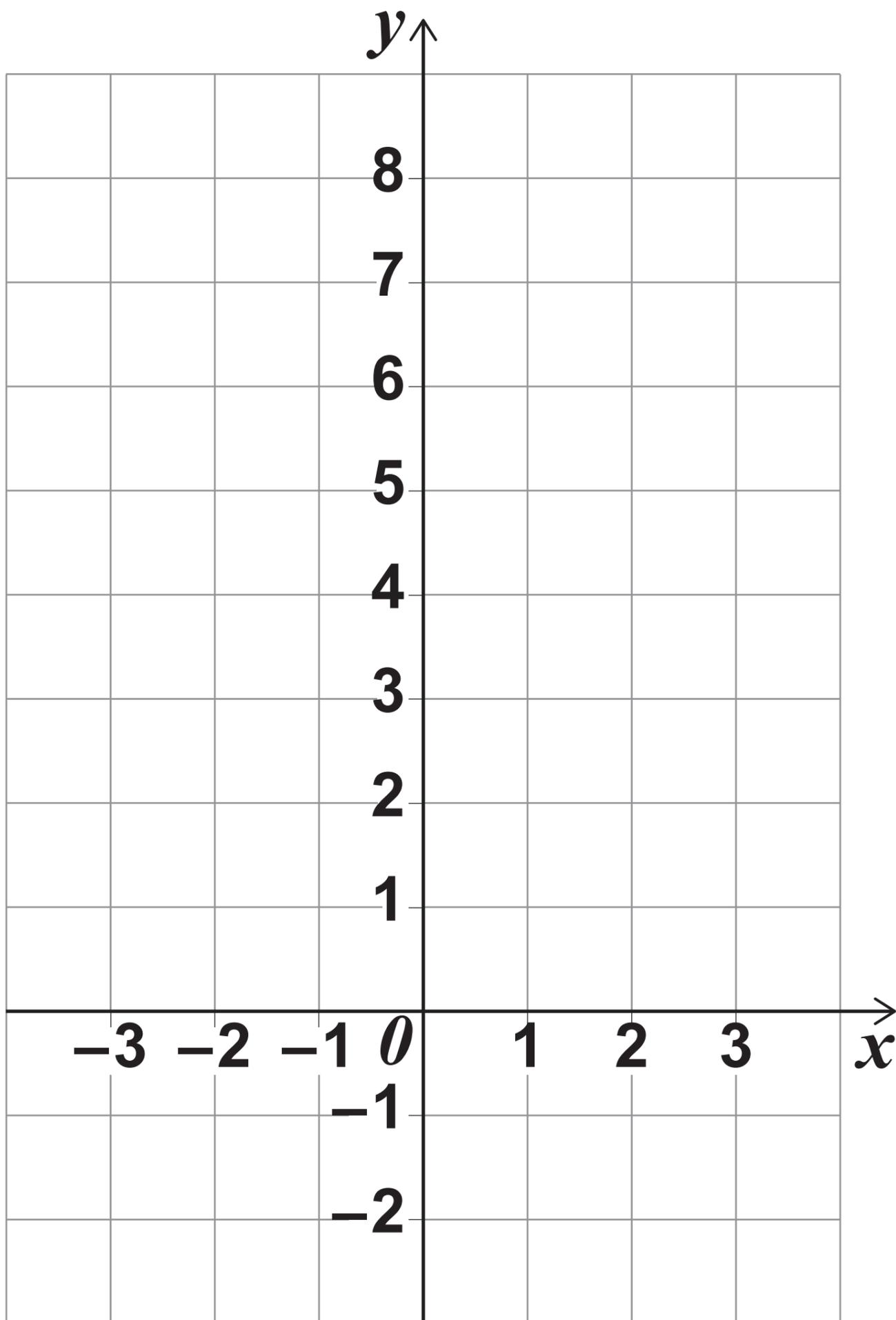
17   **Circle the expression which does NOT simplify to $y3$**
[1 mark]

$$y \times y \times y \qquad\qquad y^4 \div y$$

$$y^2 \times y \qquad\qquad y^6 \div y^2$$

<div style="text-align:right">

1

</div>

18   **Write the number**

six million five thousand two hundred

in standard form. [2 marks]

_____

_____

_____

_____

Answer _____

2

[Turn over]

19 (a)   **Use   8 km/h = 5 mph**

to convert 96 km/h to mph
[2 marks]

_____

_____

_____

_____

_____

Answer _____ mph

19 (b) x km/h = y mph

Use   8 km/h = 5 mph

to write a formula for y in terms of x.

[2 marks]

_____

_____

_____

_____

Answer _____

4

[Turn over]

20 **Here is a circle touching a square.**

Not drawn accurately.
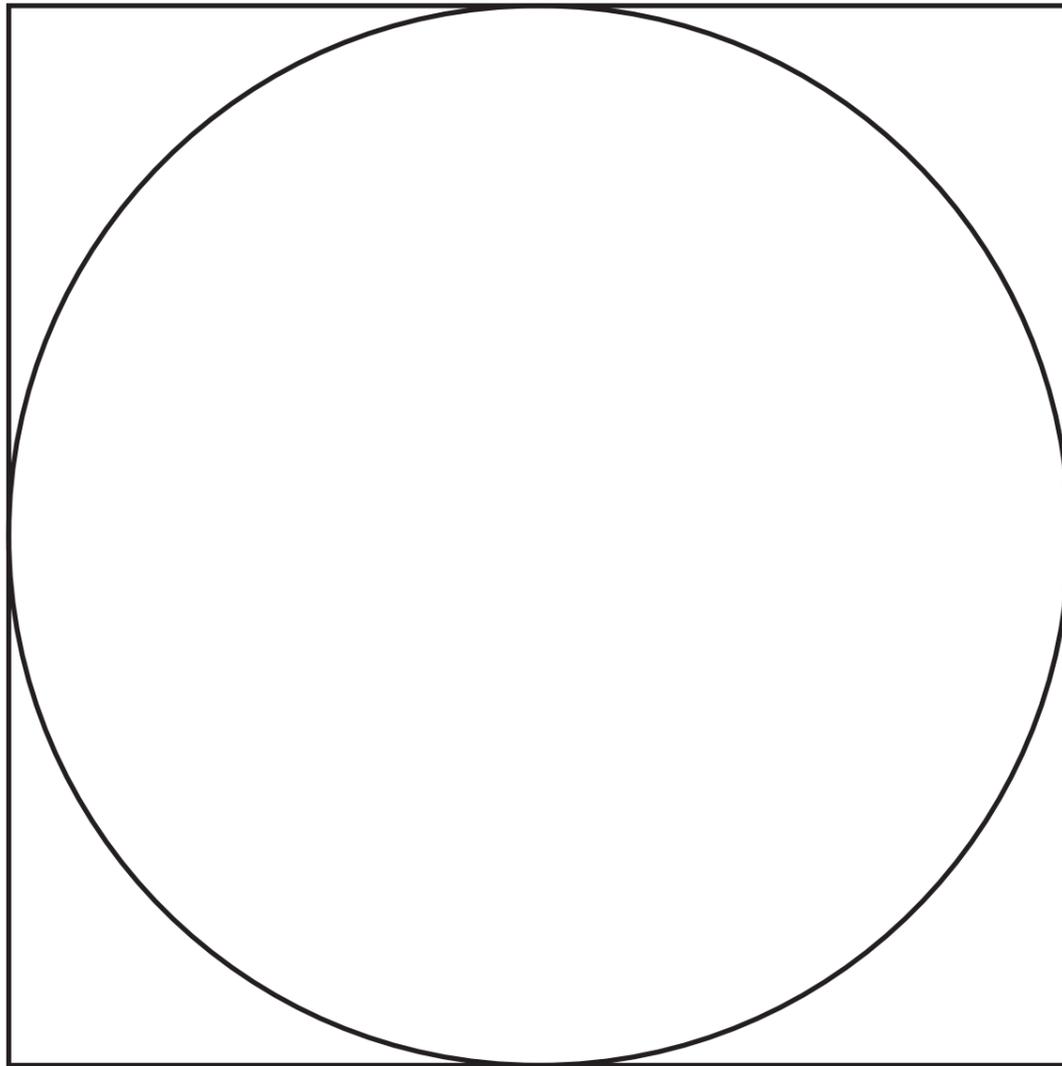
The area of the square is 64 cm²

Work out the area of the circle.

Give your answer in terms of π.
[3 marks]

_____

_____

_____

_____

_____

_____

Answer _____ **cm^2**

3

[Turn over]

21 **Billy wants to buy these tickets for a show.**

4 adult tickets at £15 each

2 child tickets at £10 each

A 10% booking fee is added to the ticket price.

3% is then added for paying by credit card.

Work out the TOTAL charge for these tickets when paying by credit card. [5 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

Answer £ _____

5

[Turn over]

22 (a)   Density = $\dfrac{\text{mass}}{\text{volume}}$

The mass of solid A is 6 times the mass of solid B.

The volume of solid A is 3 times the volume of solid B.

Complete the sentence.
[1 mark]

The density of solid A is

_____ times

the density of solid B.

22 (b) Average speed = $\dfrac{\text{distance}}{\text{time}}$

If the distance is halved and the time is doubled, what happens to the average speed?

Circle your answer. [1 mark]

× 2   × 4   no change

÷ 2   ÷ 4

2

[Turn over]

23 **A regular polygon has an exterior angle of 20°**

Work out the number of sides of the polygon. [2 marks]

_____

_____

_____

_____

_____

Answer _____

2

24    $\dfrac{1}{2}$: $\dfrac{2}{3}$ = x : 1

Circle the value of x. [1 mark]

$\dfrac{1}{3}$ $\dfrac{3}{5}$

$\dfrac{3}{4}$ $\dfrac{4}{3}$

1

[Turn over]

25 The table shows information about the times for 10 people to complete a task.

Time, t (minutes)	Frequency
$0 < t \leqslant 20$	1
$20 < t \leqslant 40$	6
$40 < t \leqslant 60$	3

These statements are about the mean and range of the actual times.

Tick the correct box for each statement. [4 marks]

True   **False**

☐ ☐ **The mean could be less than 20 minutes**

☐ ☐ **The mean could be more than 40 minutes**

☐ ☐ **The mean could be less than 40 minutes**

☐ ☐ **The range could be more than 40 minutes**

☐ ☐ **The range could be less than 40 minutes**

☐ ☐ **The range could be more than 60 minutes**

4

[Turn over]

4 5

26 **Write 36 as a product of prime factors.**

Give your answer in index form.
[3 marks]

Answer _____

3

27   **Circle the value of cos 90°**
[1 mark]

0 $\dfrac{1}{2}$ $\dfrac{\sqrt{3}}{2}$ 1

$\boxed{}$
1

[Turn over]

28 **Solve the simultaneous equations. [3 marks]**

$2x + y = 18$

$x - y = 6$

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

3

END OF QUESTIONS

49

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For Examiner's Use			
Examiner's Initials			
Question	Mark	Question	Mark
1		15	
2		16	
3		17	
4		18	
5		19	
6		20	
7		21	
8		22	
9		23	
10		24	
11		25	
12		26	
13		27	
14		28	
TOTAL		TOTAL	
	TOTAL		

5 0