AQA

GCSE
MATHEMATICS

F

Foundation Tier   Paper 1   Non-Calculator

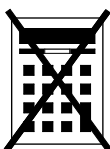Thursday 25 May 2017   Morning   Time allowed: 1 hour 30 minutes

Materials

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 outside the box around each page or 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, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

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

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
TOTAL	

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]

$x = -3$ $x = 0$ $x = \dfrac{1}{3}$ $x = 3$

5   Work out 58×73

[3 marks]

_____

_____

_____

_____

_____

_____

Answer _____
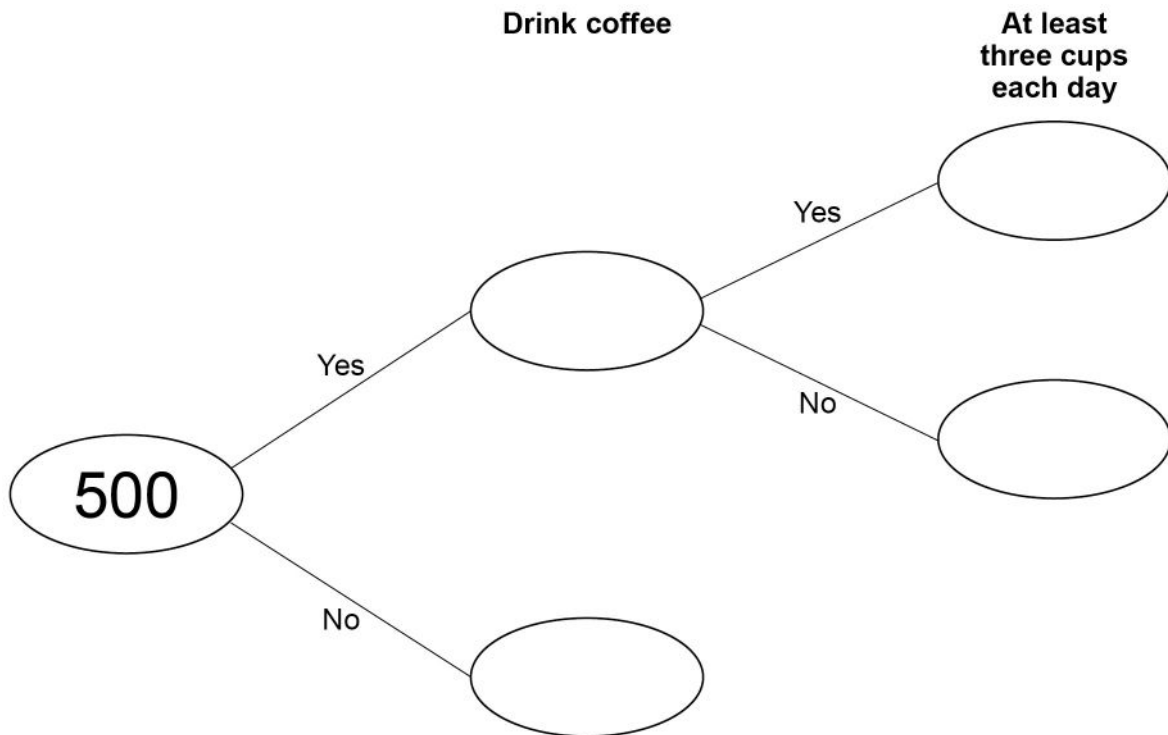
7

Turn over ▶

6   500 people are asked if they drink coffee.

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

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

6 (a)   Complete the frequency tree.

[4 marks]

Drink coffee   **At least three cups each day**

Yes

Yes

500

No

No

No

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 _____

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 _____

Turn over for the next question

8

Turn over ▶

8 Nadia has £5 to buy pencils and rulers.

Prices	
Pencils	8p each
Rulers	30p 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

9 Work out 25.68 ÷ 12

[2 marks]

Answer _____

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

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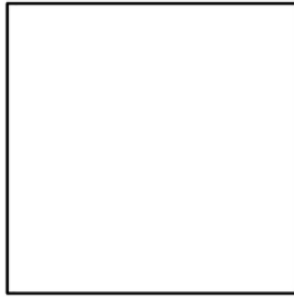
[2 marks]

Answer _____

10

Turn over ▶

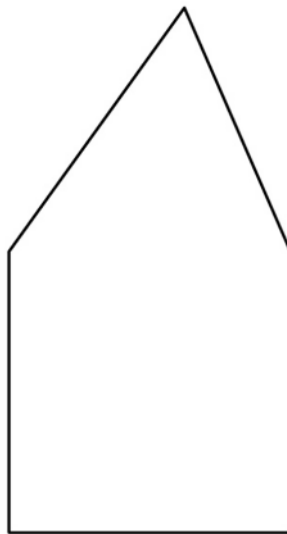**11** A triangle has perimeter 32 cm
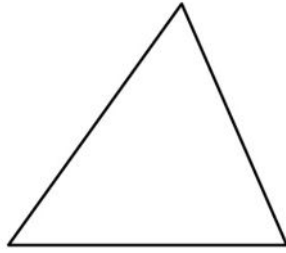
Not drawn
accurately

A square has perimeter 40 cm

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

Not drawn
accurately

Work out the perimeter of the pentagon.

[4 marks]

Answer _____ cm

Turn over for the next question

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 _____

13

$$2 + 0 + 1 + 7 = 10$$

Make the following calculations correct.

Use only the symbols $+$, $-$, $\times$, $\div$ and $(\ )$

[3 marks]

| 2 | 0 | 1 | 7 | $=$ | -4 |

| 2 | 0 | 1 | 7 | $=$ | 0 |

| 2 | 0 | 1 | 7 | $=$ | 2^4 |

Turn over for the next question

8

Turn over ▶

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.

14 (a) Complete the table.

[4 marks]

Square numbers

+	1	4	9	
2				
3			12	
7				

Prime numbers

14 (b) What is the probability that the score is a **prime** number?

[1 mark]

Answer _____

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

Turn over for the next question

8

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

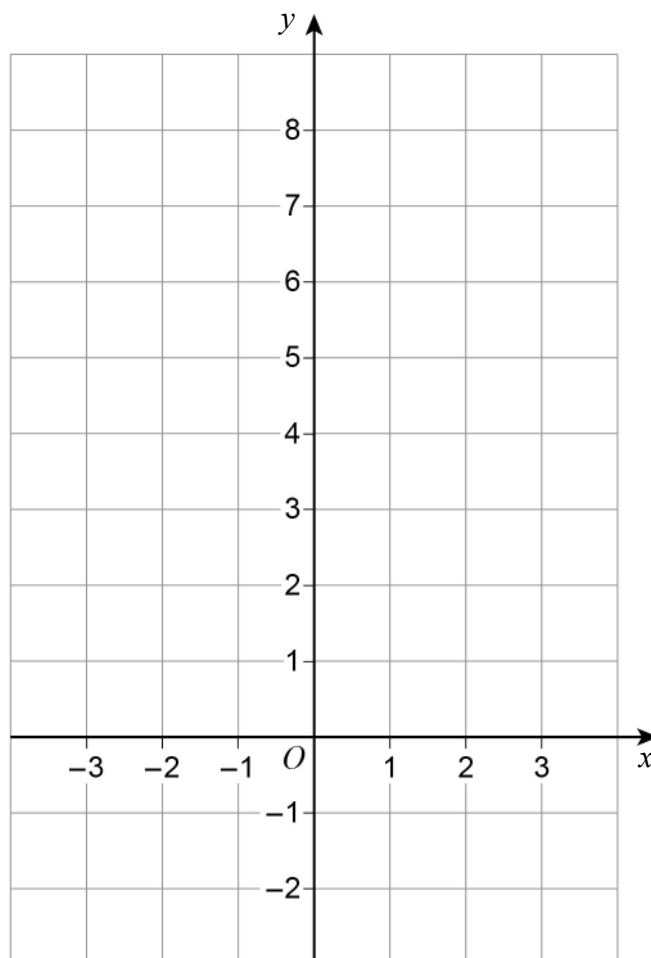**16 (a)**   Complete the coordinates of *P* and *Q*.

[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 y^3

[1 mark]

$$y \times y \times y \qquad y^4 \div y \qquad y^2 \times y \qquad y^6 \div y^2$$

18 Write the number   six million five thousand two hundred   in standard form.

[2 marks]

Answer _____

Turn over for the next question

7

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

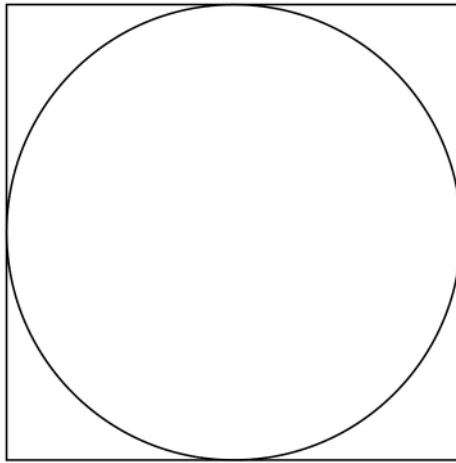Use   8 km/h = 5 mph   to write a formula for y in terms of x.

[2 marks]

Answer _____

20 Here is a circle touching a square.

Not drawn accurately

The area of the square is 64 cm^2

Work out the area of the circle.

Give your answer in terms of π.

[3 marks]

Answer _____ cm^2

Turn over for the next question

7

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 £ _____

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]

$\times\,2$ $\times\,4$ no change $\div\,2$ $\div\,4$

Turn over for the next question

7

Turn over ▶

23 A regular polygon has an exterior angle of 20°

Work out the number of sides of the polygon.

[2 marks]

Answer _____

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

Circle the value of x.

[1 mark]

$\dfrac{1}{3}$ $\qquad$ $\dfrac{3}{5}$ $\qquad$ $\dfrac{3}{4}$ $\qquad$ $\dfrac{4}{3}$

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	☐	☐

Turn over ▶

26 Write 36 as a product of prime factors.

Give your answer in index form.

[3 marks]

Answer _____

27 Circle the value of cos 90°

[1 mark]

$$0 \qquad \frac{1}{2} \qquad \frac{\sqrt{3}}{2} \qquad 1$$

28 Solve the simultaneous equations.

$$2x + y = 18$$

$$x - y = 6$$

[3 marks]

_____

_____

_____

_____

_____

_____

_____

Answer _____

END OF QUESTIONS

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED