

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

GCSE MATHEMATICS

F

Foundation Tier Paper 1 Non-Calculator

Thursday 25 May 2017

Morning

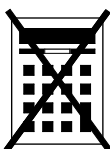
Time allowed: 1 hour 30 minutes

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]

$x = -3$

$x = 0$

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

$x = 3$

5 Work out 58×73

[3 marks]

Answer _____



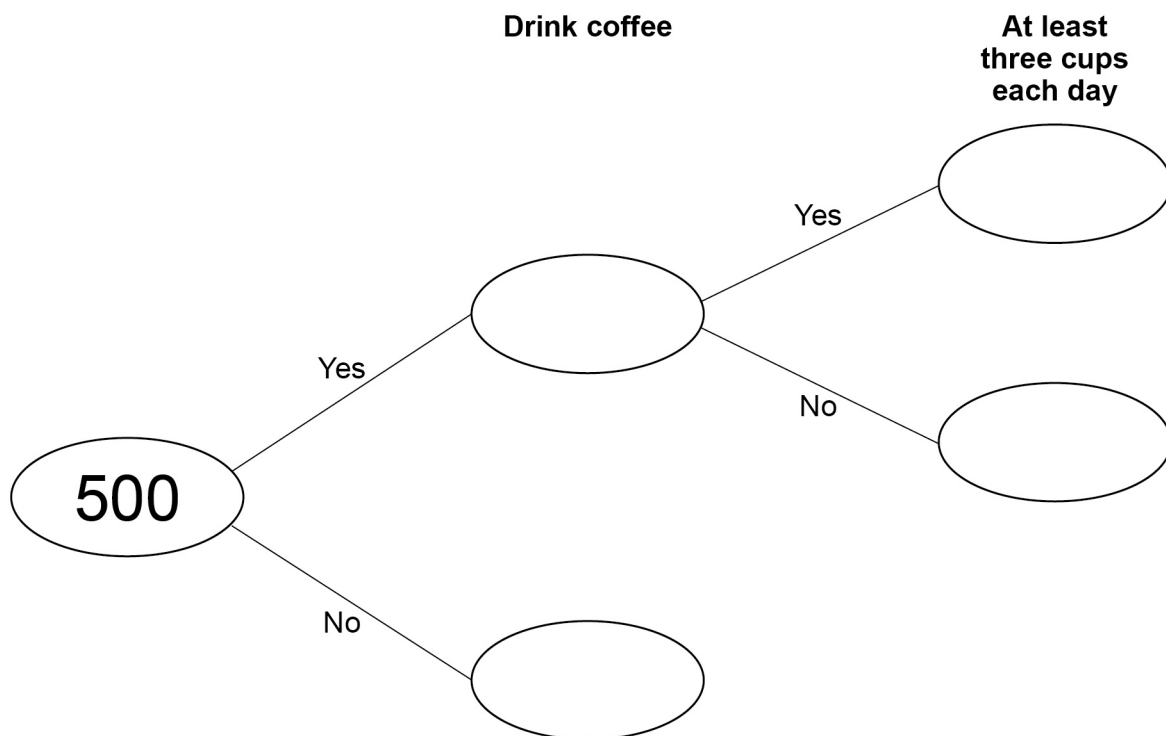
6 500 people are asked if they drink coffee.

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

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

6 (a) Complete the frequency tree.

[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 _____

- 7** By rounding each number to the nearest 10,

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

You **must** show your working.

[2 marks]

Answer _____

Turn over for the next question

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 $25.68 \div 12$

[2 marks]

Answer _____

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

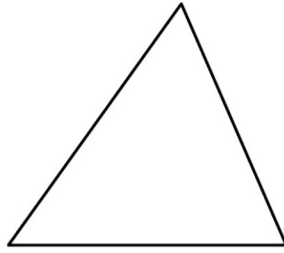
Give your answer as a mixed number.

[2 marks]

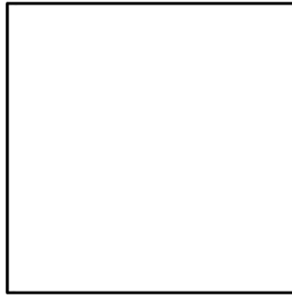
Answer _____



- 11 A triangle has perimeter 32 cm

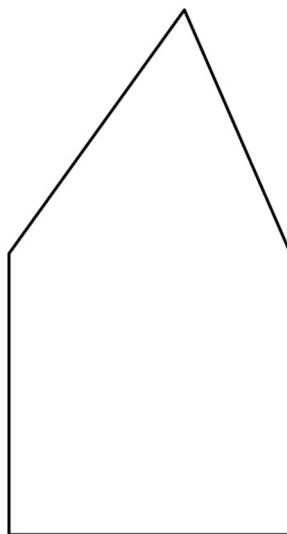


A square has perimeter 40 cm



Not drawn
accurately

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



- 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]

$$2 \quad 0 \quad 1 \quad 7 = -4$$

$$2 \quad 0 \quad 1 \quad 7 = 0$$

$$2 \quad 0 \quad 1 \quad 7 = 2^4$$

Turn over for the next question

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	
Prime numbers	2					
	3				12	
	7					

- 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**Turn over ►**

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

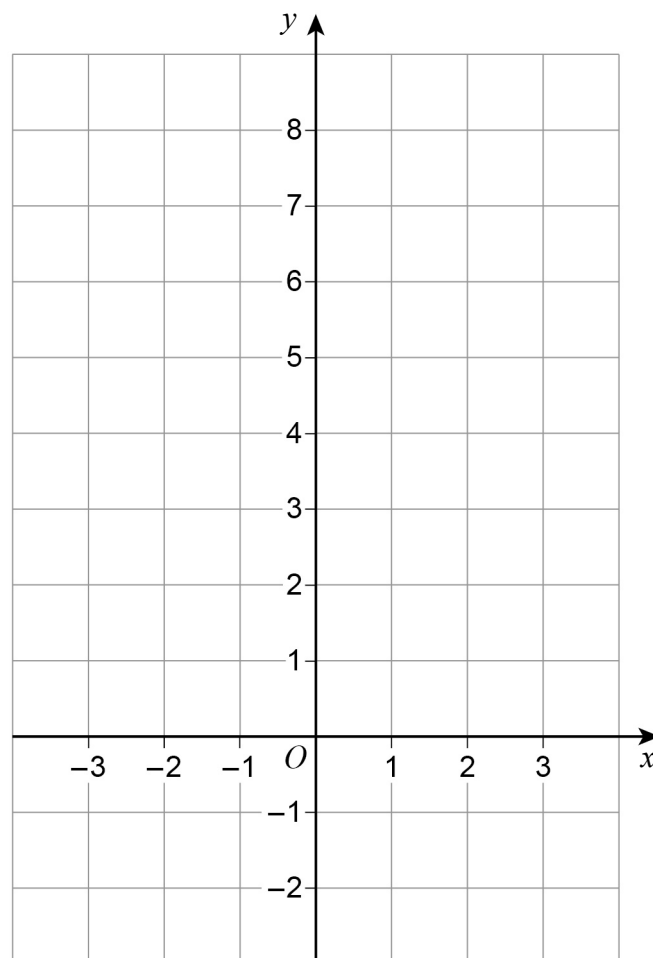
16 (a) Complete the coordinates of P and Q .

[2 marks]

$P (0 , \underline{\hspace{1cm}}) \quad Q (\underline{\hspace{1cm}} , 0)$

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]

$y \times y \times y$

$y^4 \div y$

$y^2 \times y$

$y^6 \div y^2$

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

[2 marks]

Answer _____

Turn over for the next question



19 (a) Use $8 \text{ km/h} = 5 \text{ mph}$ to convert 96 km/h to mph

[2 marks]

Answer _____ mph

19 (b) $x \text{ km/h} = y \text{ mph}$

Use $8 \text{ km/h} = 5 \text{ mph}$ to write a formula for y in terms of x .

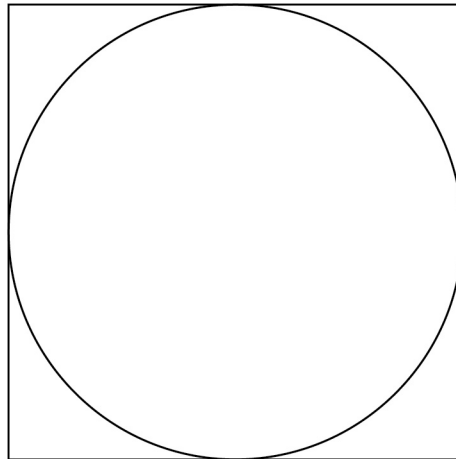
[2 marks]

Answer _____



20

Here is a circle touching a square.

Not drawn
accuratelyThe 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****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 = $\frac{\text{mass}}{\text{volume}}$

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

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



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

Work out the number of sides of the polygon.

[2 marks]

Answer _____

- 24** $\frac{1}{2} : \frac{2}{3} = x : 1$

Circle the value of x .

[1 mark]

$$\frac{1}{3}$$

$$\frac{3}{5}$$

$$\frac{3}{4}$$

$$\frac{4}{3}$$



25

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

Time, t (minutes)	Frequency
$0 < t \leq 20$	1
$20 < t \leq 40$	6
$40 < t \leq 60$	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 $\cos 90^\circ$

[1 mark]

0

$\frac{1}{2}$

$\frac{\sqrt{3}}{2}$

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

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ANSWER IN THE SPACES PROVIDED**

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