Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

GCSE MATHEMATICS

F

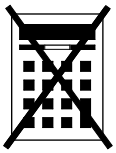
Foundation Tier Paper 1 Non-Calculator

Thursday 24 May 2018 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.
- Fill in the boxes at the top of this page.
- 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 graph paper, tracing paper and more answer 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	
24–25	
TOTAL	

Do not write outside the box

Answer **all** questions in the spaces provided

1 Work out $\frac{1}{2} \times 5$

Circle your answer.

[1 mark]

$\frac{5}{10}$ $2\frac{1}{2}$ $\frac{1}{10}$ $2\frac{1}{5}$

2 Circle the number that is 5 **less** than –2

[1 mark]

–10 –7 –3 3

3 Simplify $3 \times a \times 3 \times a$

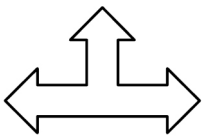
Circle your answer.

[1 mark]

$9a$ $6a^2$ $9a^2$ $6a$

Do not write outside the box

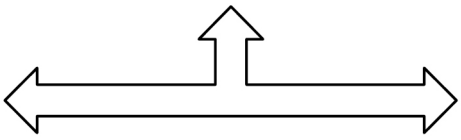
4 Which shape is **similar** to shape X?



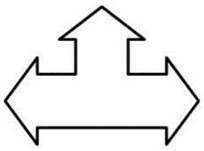
X

Circle the correct letter.

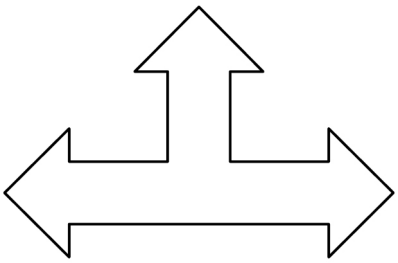
[1 mark]



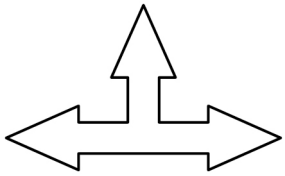
A



B



C



D

4

Do not write outside the box

5 Work out 20% of 14 000

[2 marks]

Answer _____

6 (a) Write 0.85 as a fraction in its simplest form.

[2 marks]

Answer _____

6 (b) Write $\frac{5}{8}$ as a decimal.

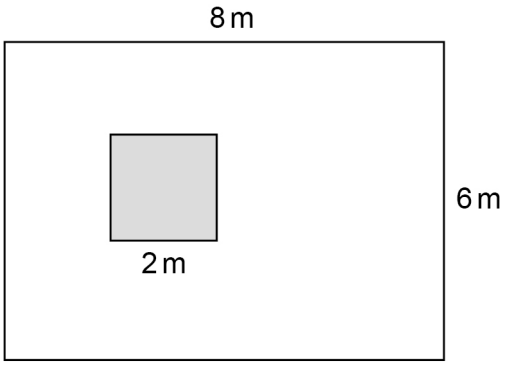
[1 mark]

Answer _____

Do not write outside the box

7 A rectangular carpet measures 8 m by 6 m

Part of the carpet is covered by a square rug of length 2 m



Not drawn accurately

Show that $\frac{1}{12}$ of the carpet is covered by the rug.

[2 marks]

7

Turn over ►

Do not write outside the box

8 Sam, Carl and Erik share 40 sweets.

Erik gets the largest share.

What is the **smallest** possible number of sweets that Erik could get?

[2 marks]

Answer _____

9 The time in Rio is three hours behind London.

The time in New York is five hours behind London.

What is the time in New York when it is 1.00 am in Rio?

[2 marks]

Answer _____

Do not write outside the box

10 Here is a list of numbers.

5 6 1 3 5 5 8 4 2 2

10 (a) Work out the median.

[2 marks]

Answer _____

10 (b) Work out the mean.

[2 marks]

Answer _____

Turn over for the next question

8

Do not write outside the box

11 300 passengers go on a coach trip.

Each coach takes 50 passengers.

Each passenger pays £25

The table shows the costs for the coach company.

	Cost for each coach
Pay for driver	£90
Fuel	70p per mile

Each coach travels 200 miles.

Work out the **total** profit the company makes from this trip.

[6 marks]

Answer £ _____

Do not write outside the box

12 (a) Work out 16.4 – 3.92 + 7.8

[2 marks]

Answer _____

12 (b) Work out 2843.61 ÷ 7

[2 marks]

Answer _____

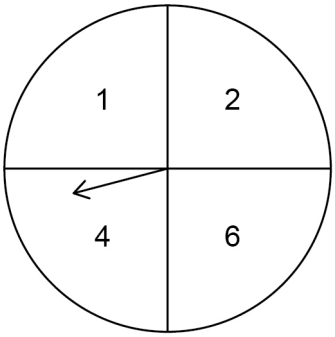
Turn over for the next question

10

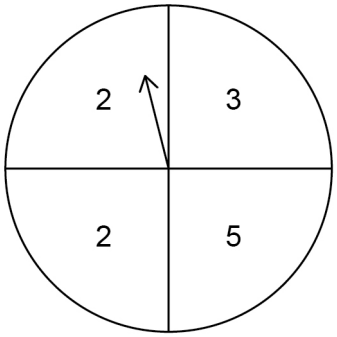
Do not write outside the box

13 In a game, two fair spinners are spun.

Spinner A



Spinner B



If the numbers the arrows land on are different, the score is the **higher** number.

If the numbers the arrows land on are the same, the score is 0

13 (a) Complete the table to show the possible scores.

[2 marks]

Spinner B

Spinner A	**2**	**2**	**3**	**5**
1	2			
2		0		
4				
6				

13 (b) Write down the probability that the score is an **odd** number.

[1 mark]

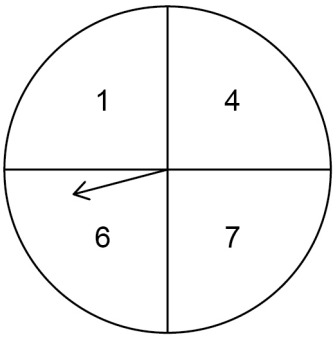
Answer _____

Do not write outside the box

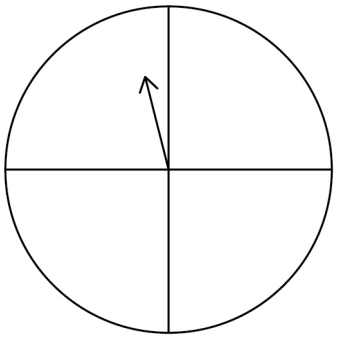
13 (c) The same game is played using spinners C and D.

The numbers on C are shown.

Spinner C



Spinner D



The table shows some of the possible scores.

		Spinner D			
Spinner C	**1**	4			
	4		0		
	6				
	7			0	8

Write the missing numbers on spinner D.

[2 marks]

5

Turn over ►

Do not write outside the box

14 2 people working at the same rate will take 6 hours to paint a room.

14 (a) Assuming that they **all** work at this rate,

how long will it take 3 people to paint the room?

[2 marks]

Answer _____ hours

14 (b) In fact, the **third** person works at a faster rate.

How does this affect the time to paint the room?

[1 mark]

Do not write outside the box

15 $3a + b = 7$ and $6x + 8y = 40$

Show that $9a + 3b$ has a **greater** value than $3x + 4y$

[2 marks]

Turn over for the next question

5

Do not write outside the box

16 Circle the point that lies on the line $x - 3 = 0$

[1 mark]

(3, 0) (0, 3) (–3, 0) (0, –3)

17 a is a negative odd number.

Circle the words that describe a^2

[1 mark]

negative and odd negative and even

positive and odd positive and even

18 Circle the ratio which is the same as the scale 1 cm represents 1 km

[1 mark]

1 : 100 1 : 1000 1 : 10 000 1 : 100 000

Do not write outside the box

19 Circle the percentage that is closest in value to $\frac{1}{3}$

[1 mark]

30% 33% 33.3% 33.4%

20 Work out $\sqrt{121} - (13 - 5 \times 2)^2$

[3 marks]

Answer _____

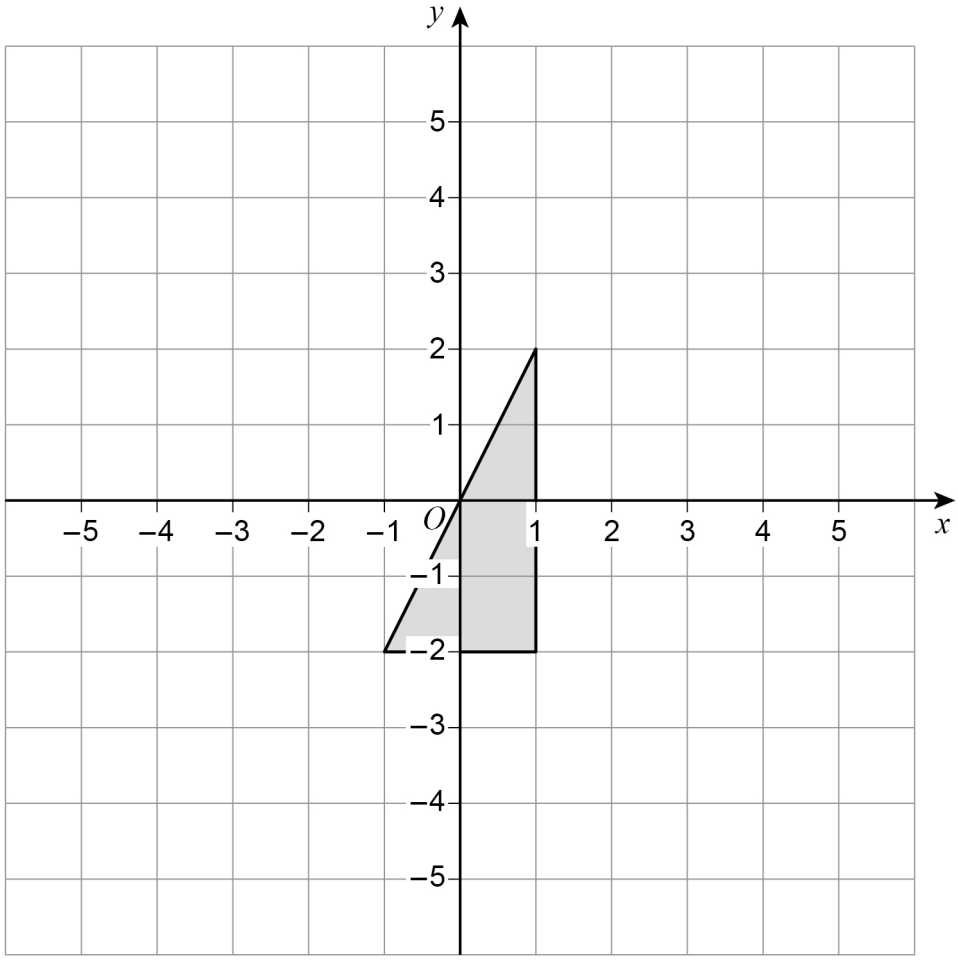
Turn over for the next question

7

Do not write outside the box

21 (a) Reflect the triangle in the line $x = 2$

[2 marks]



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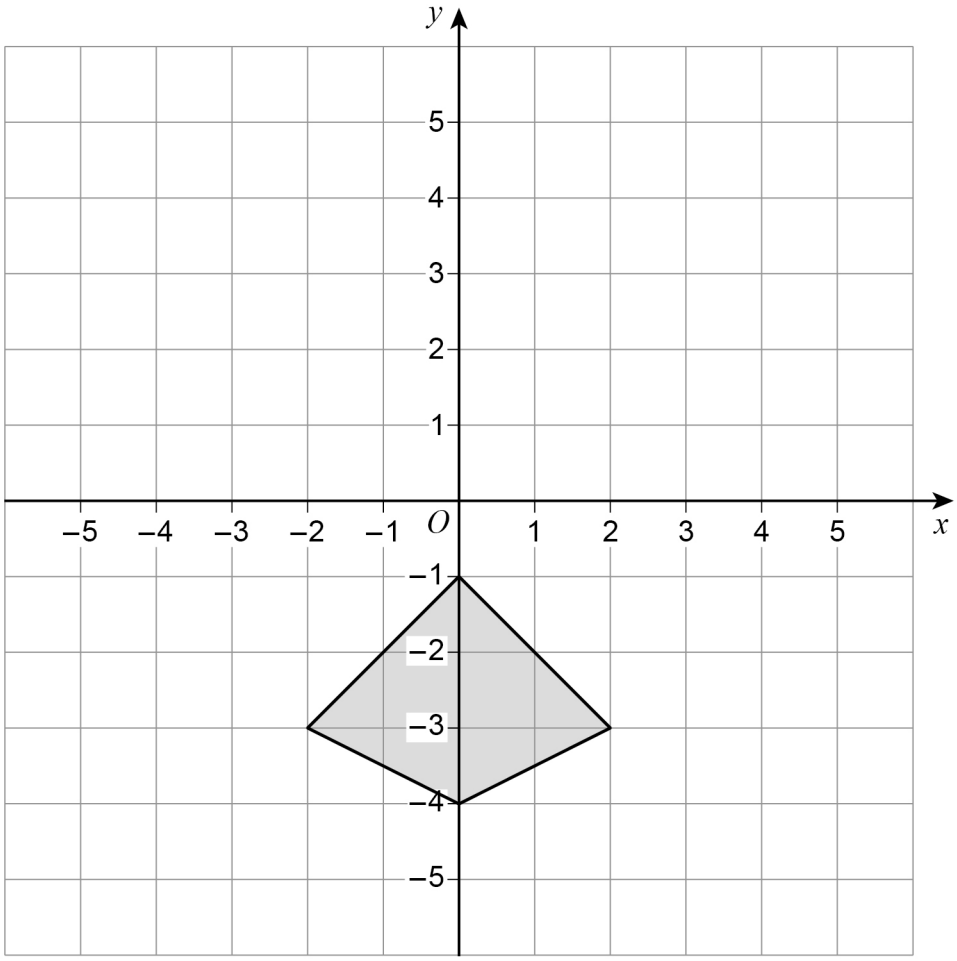
21 (b) Rotate the kite 90° anticlockwise about (0, 0)

[2 marks]



Turn over for the next question

4

Do not write outside the box

22 Anna plays a computer game.

Each game is a win or a loss.

She wins three quarters of her first 24 games.

She then wins her next 12 games.

For all 36 games, work out the ratio wins : losses

Give your answer in its simplest form.

[3 marks]

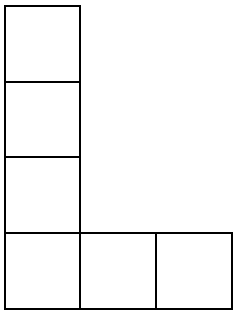
Answer _____ : _____

Do not write outside the box

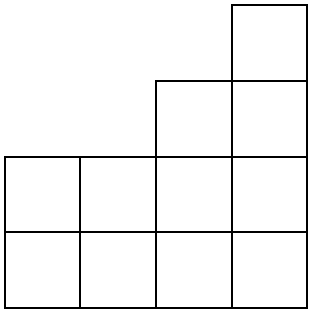
23 A solid shape is made from centimetre cubes.

Here are the plan, side elevation and front elevation of the shape.

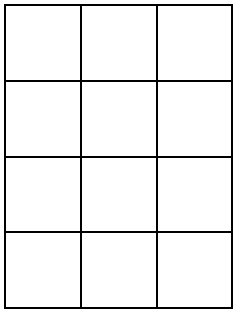
Plan



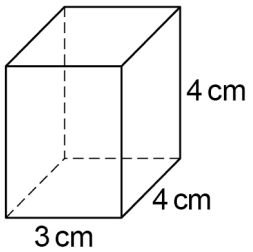
Side elevation



Front elevation



Centimetre cubes are added to make this cuboid.



How many cubes are added?

[3 marks]

Answer _____

6

Turn over ►

Do not write outside the box

24 Divide 405 in the ratio 4 : 11

[3 marks]

Answer _____ and _____

25 The height of Zak is 1.86 metres.
The height of Fred is 1.6 metres.

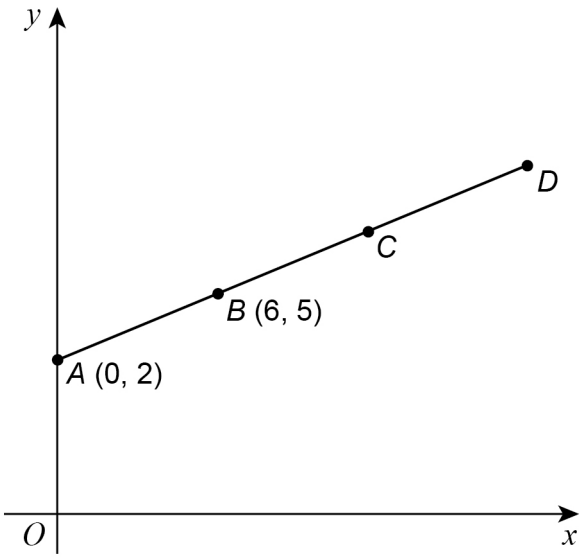
Write the height of Zak as a fraction of the height of Fred.
Give your answer in its simplest form.

[3 marks]

Answer _____

Do not write outside the box

26 *A* (0, 2) and *B* (6, 5) are points on the straight line *ABCD*.



Not drawn accurately

AB = *BC* = *CD*

Work out the coordinates of *D*.

[3 marks]

Answer (_____ , _____)

Turn over for the next question

9

Do not write outside the box

27 A coin is thrown 50 times.

It lands on heads 31 times.

27 (a) Write down the relative frequency it lands on heads.

[1 mark]

Answer _____

27 (b) Raj says,

"The coin is biased towards heads."

Use the data to give a reason why he might be correct.

[1 mark]

_____

_____

_____

28 Solve $5(x + 3) < 60$

[2 marks]

_____

_____

_____

_____

Answer _____

Do not write outside the box

29 The range of a set of numbers is $15\frac{1}{4}$

The smallest number is $-2\frac{7}{8}$

Work out the largest number.

[3 marks]

Answer _____

30 y is inversely proportional to x.

Complete the table.

[2 marks]

x	12	6	
y		4	8

Turn over for the next question

9

Do not write outside the box

31 A large rectangle is made by joining three identical small rectangles as shown.

Not drawn accurately

The perimeter of one small rectangle is 15 cm

Work out the perimeter of the large rectangle.

[4 marks]

Answer _____ cm

Do not write outside the box

32 Put these numbers in order from smallest to largest.

8×10^{-4} 4×10^{-2} 6×10^{-4} 0.07

[2 marks]

Smallest _____

_____

_____

Largest _____

END OF QUESTIONS

6

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ANSWER IN THE SPACES PROVIDED

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