

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 3 Calculator

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments
- 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	
TOTAL	

- 1 (a)** Write down the percentage that is equal to $\frac{3}{4}$

[1 mark]

Answer _____ %

- 1 (b)** Write down a fraction that is equal to 0.3

[1 mark]

Answer _____

- 2** Round 37 to the nearest 10

[1 mark]

Answer _____

- 3** Jen has £20

She buys

- a book for £3.99
- two magazines at £1.49 each
- a pack of pens for £2.29

She gives half of the change to Tim.

How much does Tim receive?

[4 marks]

Answer £ _____

4 Shade one quarter of this grid.

[1 mark]

Turn over for the next question

5 Here are some cards.

+2.3

+1.9

-1.9

-2.3

- 5 (a) Choose a card to make the **smallest** possible answer.
Work out the answer.

[2 marks]

-0.5

+

=

- 5 (b) Choose a card to make the **smallest** possible answer.
Work out the answer.

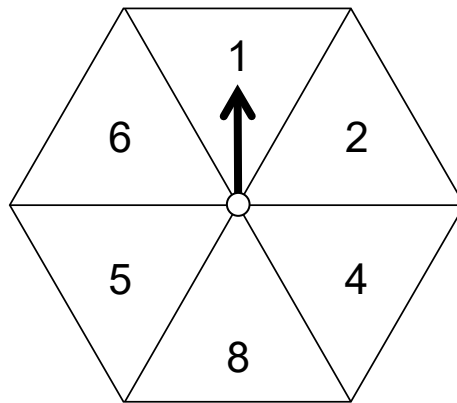
[2 marks]

-0.5

-

=

- 6 (a)** A fair spinner has 6 equal sections.



The arrow on the spinner is spun.

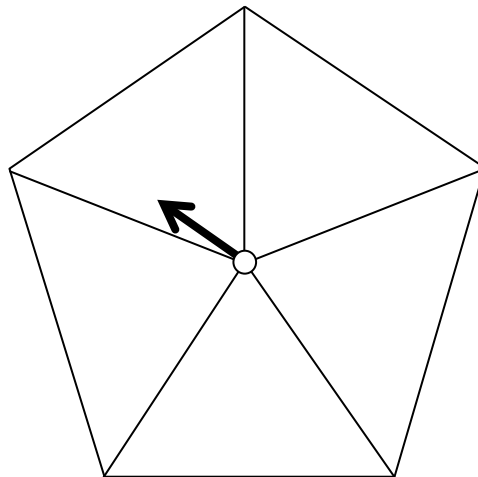
Complete each of the following sentences with the correct probability.

[2 marks]

The probability that the arrow will land on an 8 is _____

The probability that the arrow will land on an odd number is _____

- 6 (b)** This fair spinner has five equal sections.



Write a number on each section so that

the probability that the arrow lands on 4 is $\frac{3}{5}$

the total of the numbers is 21

[2 marks]

7

J1, J2 and J3 are three junctions on a motorway.

The distance from J2 to J3 is 8.8 miles.



Not drawn
accurately

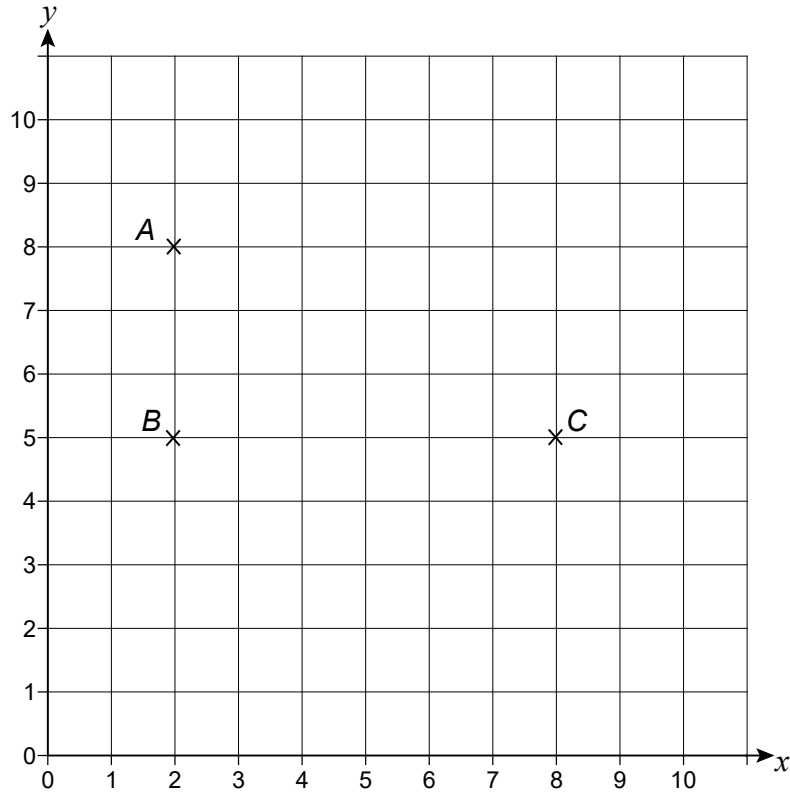
The distance from J1 to J2 is one-quarter of the distance from J2 to J3.

Work out the distance from J1 to J3.

[3 marks]

Answer _____ miles

- 8 A , B and C are three vertices of a quadrilateral plotted on a centimetre grid.



- 8 (a) Plot D on the grid so that $ABCD$ is a rectangle.

[1 mark]

- 8 (b) E is the midpoint of BC .

Circle the **two** answers that describe triangle ABE .

[2 marks]

scalene

isosceles

equilateral

right-angled

- 8 (c) Write down the ratio length of AB : length of BC

Give your answer in simplest form.

[2 marks]

Answer _____ : _____

- 9** A bag of sweets contains only red and yellow sweets. There are twice as many red as yellow.

- 9 (a)** What fraction of the sweets are red?

[1 mark]

Answer _____

- 9 (b)** There are 18 red sweets.

Work out the total number of sweets in the bag.

[2 marks]

Answer _____

10 (a) Factorise $2x - 4$

[1 mark]

Answer _____

10 (b) Solve $\frac{x}{5} + 1 = 10$

[3 marks]

Answer _____

11 The scale on a map is 1 : 200 000

Work out the number of kilometres represented by 2 cm on the map.

[2 marks]

Answer _____ km

12 Here are the first three terms of a sequence.

10 -6 4

Each term is obtained by adding the previous two terms together.

12 (a) Work out the next **two** terms in the sequence.

[1 mark]

Answer _____ and _____

12 (b) The sequence continues.

How many negative terms are in the sequence altogether?

Circle your answer.

1 2 3 4 more than 4

Give a reason for your answer.

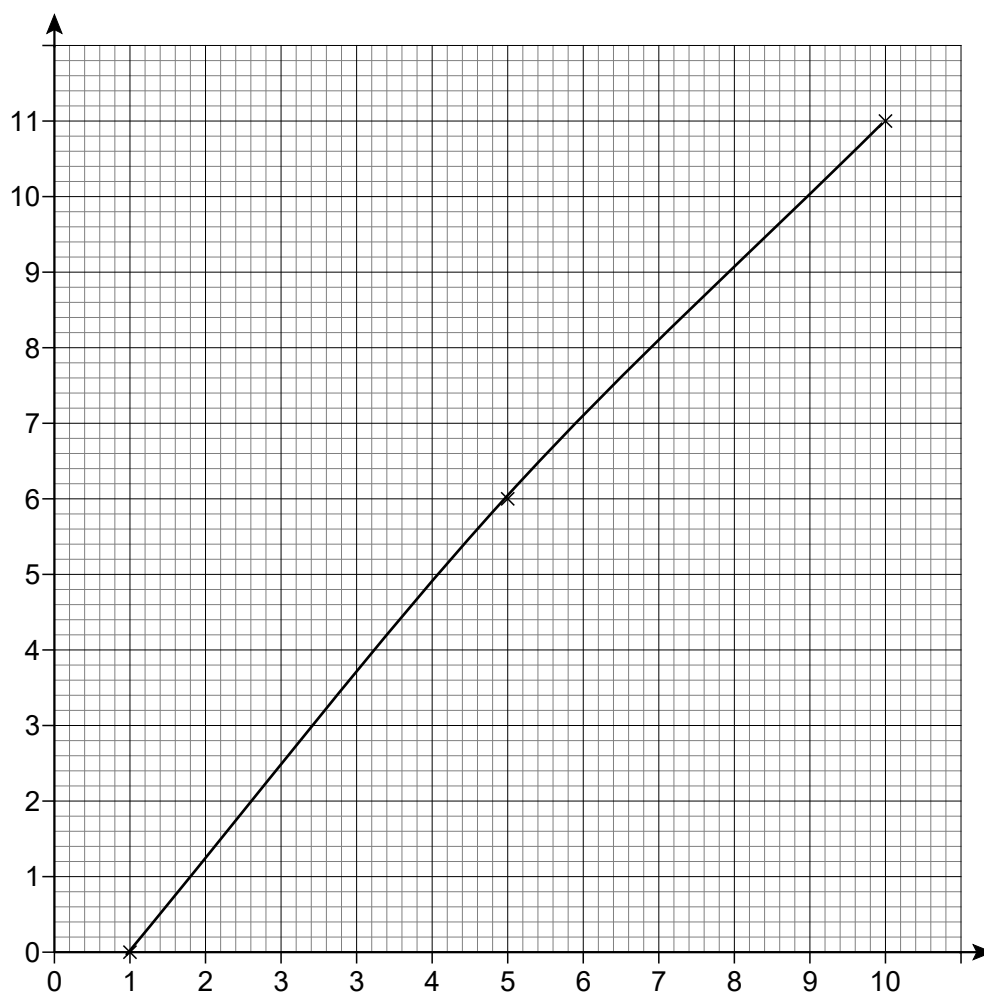
[2 marks]

13

Guy is using this table of results to draw the graph of $y = x + 1$ for values of x from 0 to 10

x	0	5	10
y	1	6	11

This is his graph.



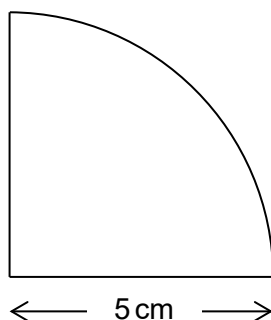
Write down **two** different mistakes he has made.

[2 marks]

Mistake 1 _____

Mistake 2 _____

- 14 The diagram shows a quarter circle with radius 5 cm



Not drawn
accurately

Work out the area of the quarter circle.

[3 marks]

Answer _____ cm^2

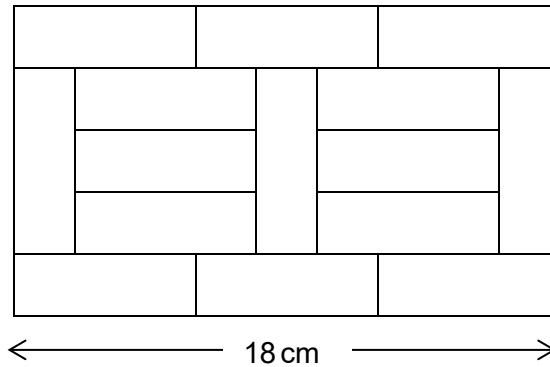
- 15 £500 is invested for 2 years at 3% **simple** interest per year.

Work out the total interest.

[3 marks]

Answer £ _____

- 16** A shape is made using 15 identical rectangles.



Not drawn
accurately

Work out the area of the shape.

[4 marks]

Answer _____ cm^2

- 17** I am thinking of a number (n).

I subtract 3 from my number.

I divide the answer by 5

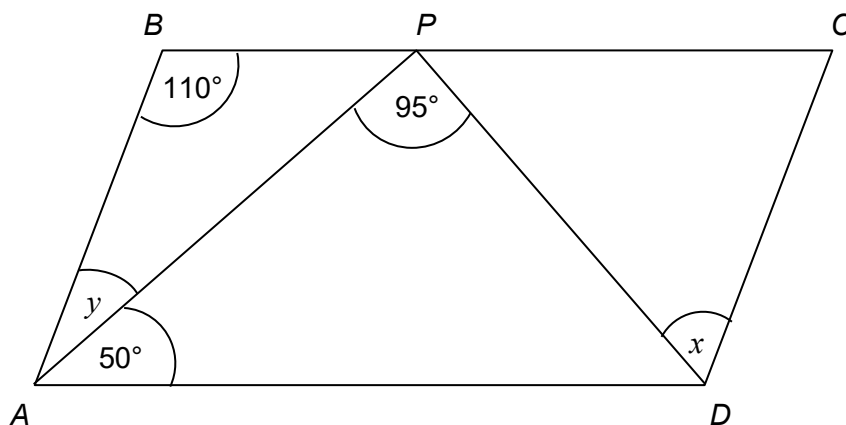
My final answer is 2

Work out my final answer if I add 7 to my number (n) and then divide by 4

[4 marks]

Answer _____

- 18** The diagram shows a parallelogram $ABCD$.



Not drawn
accurately

- 18 (a)** Work out the size of angle x
You **must** show your working, which may be on the diagram.

[3 marks]

Answer _____[°]

- 18 (b)** Work out the size of angle y

[1 mark]

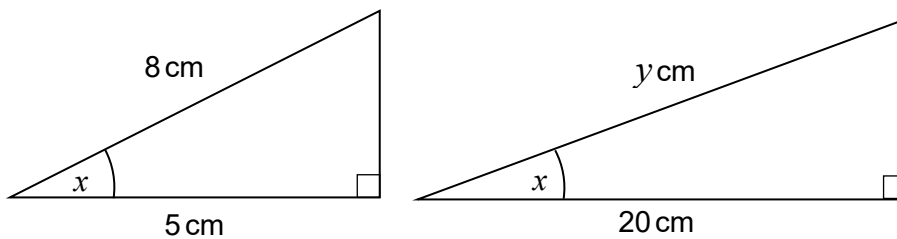
Answer _____[°]

- 19** A time of 10.4 seconds is given to the nearest 0.1 of a second.
Complete the error interval.

[2 marks]

Answer _____ $\leq t <$ _____

- 20** These two right-angled triangles are similar

Not drawn
accurately

- 20 (a)** Write down the value of $\cos x$
Give your answer as a fraction.

[1 mark]

Answer _____

- 20 (b)** Work out the value of y

[2 marks]

Answer _____ cm

- 21** In a band with 3 members, the mean age is 21 years old.
Ashley joins the band.
The mean age of **all** 4 members of the band is now 22 years old.
Work out the age of Ashley.

[4 marks]

Answer _____ years old

- 22** A line has the equation $y = 3x - 5$

- 22 (a)** Write down the gradient of the line.

[1 mark]

Answer _____

- 22 (b)** Write down the y -intercept of the line.

[1 mark]

Answer _____

- 23** John chooses a number at random from the digits 1 to 4
Matt also chooses a number at random from the digits 1 to 4

- 23 (a)** Write down the probability that the **total** of the two numbers chosen is 10

[1 mark]

Answer _____

- 23 (b)** Work out the probability that the **total** of the two numbers chosen is more than 6

[3 marks]

Answer _____

24

At a cinema

3 adult and 2 child tickets cost £46

1 adult and 2 child tickets cost £24

Work out the cost of an adult ticket and the cost of a child ticket.

[3 marks]

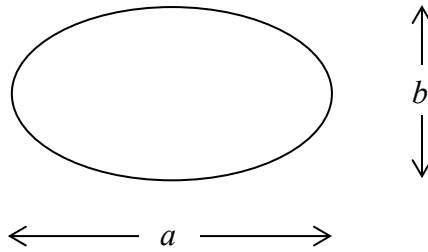
Cost of an adult ticket £ _____

Cost of a child ticket £ _____

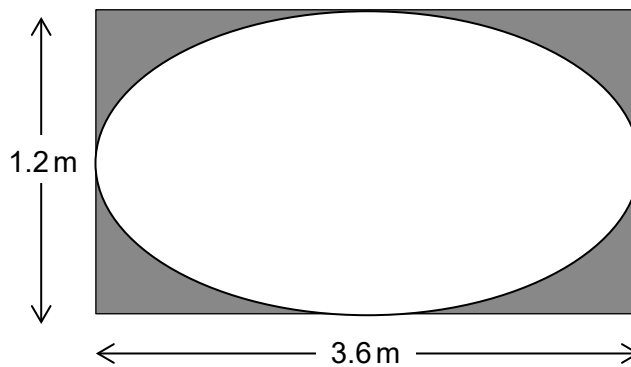
25

The area of an ellipse, width a and height b , is given by

$$\text{Area} = \frac{\pi ab}{4}$$



A sign is made from a rectangular metal sheet measuring 3.6 m by 1.2 m



Not drawn
accurately

The shaded sections are removed to make the sign.

Work out the percentage of the rectangular metal sheet used to make the sign.

[3 marks]

Answer _____ %

26

Company A claims that their products are half as likely to be faulty compared to Company B.

In a sample, 4% of products from Company A were faulty.

Here are the results of a sample from Company B.

Company B

	Number of products
Faulty	32
Not faulty	368

Comment on Company A's claim.

You **must** show your working.

[3 marks]

END OF QUESTIONS

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