

GCSE MATHEMATICS

Name:

Practice Paper Foundation 3

Maximum marks: 81

Calculator

Time allowed: 1 hour 30 minutes

These questions are from past papers covering topics and skills based on the advance information to help you prepare for the exams this summer.

Answer all questions in the spaces provided.

1 (a) Circle the factor of 100.

8 11 15 16 18 20

(1)

(b) Circle the multiple of 9.

8 11 15 16 18 20

(1)

(c) Circle the square number.

8 11 15 16 18 20

(1)

(d) Circle the cube number.

8 11 15 16 18 20

(1)

(Total 4 marks)

2 How many centimetres are there in 3.7 metres?

Circle your answer.

0.037 0.37 37 370

(Total 1 mark)

- 3 (a) Write in figures the number thirty thousand and sixteen

Answer _____

(1)

- (b) Write in words the number 0.43

Answer _____

(1)

- (c) Write down the **value** of the digit 9 in the number 41 982

Answer _____

(1)

(Total 3 marks)

- 4 The table shows information about 80 shirts in a shop.

	slim	tailored	regular	classic
grey	2	6	7	4
blue	8	5	9	5
purple	1	3	4	10
white	11	0	2	3

- (a) How many of the shirts are **tailored**?

Answer _____

(1)

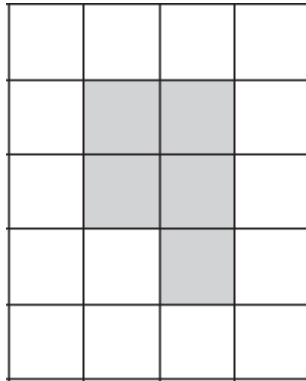
- (b) How many of the **blue** shirts are **slim or regular**?

Answer _____

(1)

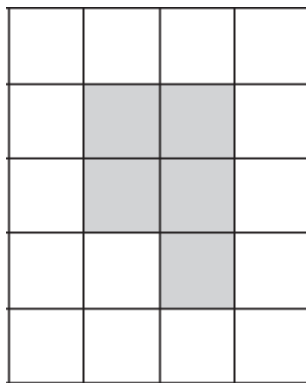
(Total 2 marks)

- 5 (a) Shade **one more** square so that the shaded shape has one line of symmetry
no rotational symmetry.



(2)

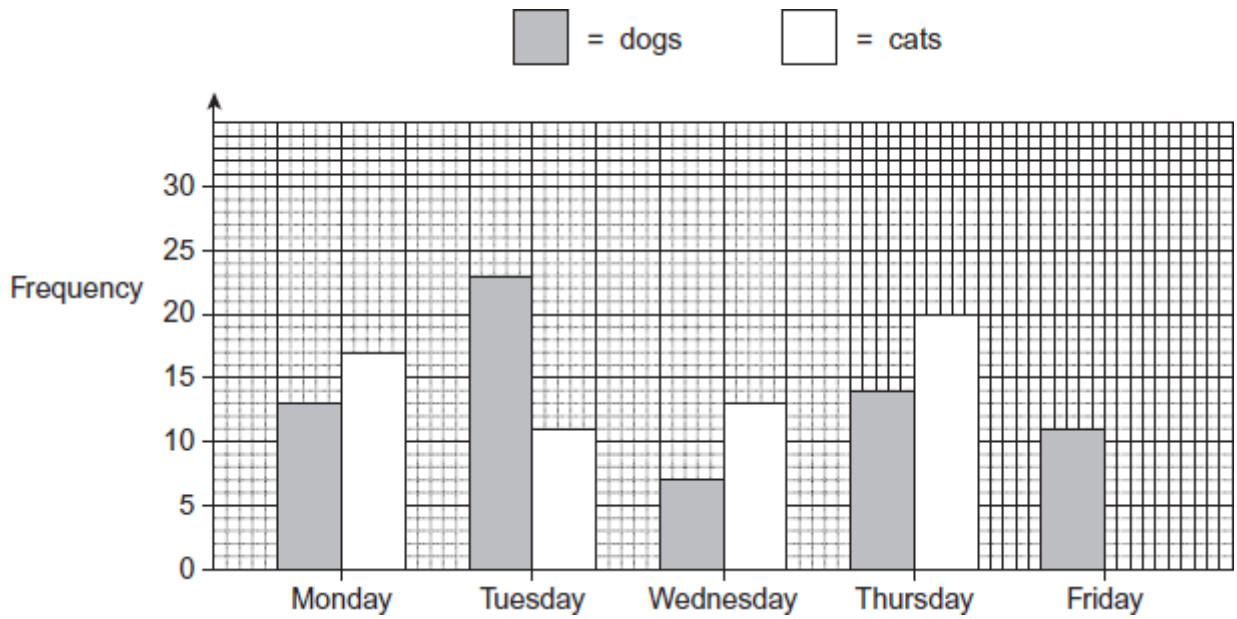
- (b) Shade **one more** square so that the shaded shape has no lines of symmetry
rotational symmetry of order 2.



(2)

(Total 4 marks)

- 6 The bar chart shows the number of dogs and cats taken to a vet one week.
The bar for cats on Friday is missing.



- (a) How many dogs were taken to the vet on Tuesday?

Answer _____

(1)

- (b) Work out the total number of dogs and cats taken to the vet on Monday.

Answer _____

(1)

- (c) In this week, an equal number of dogs and cats were taken to the vet.
How many cats were taken to the vet on Friday?

Answer _____

(4)

(Total 6 marks)

7 The rectangle is drawn accurately.



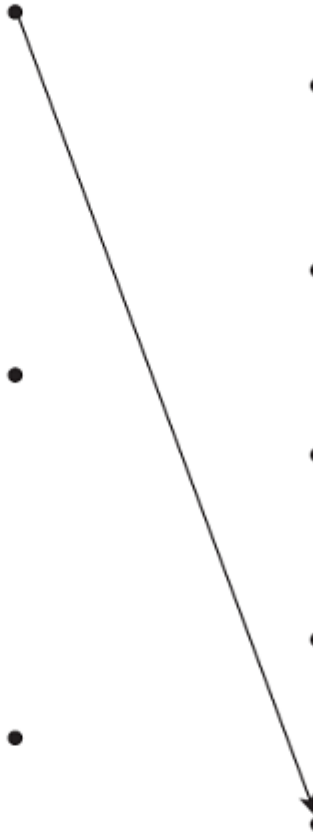
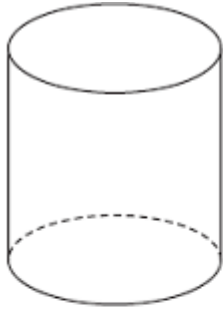
Work out the perimeter of the rectangle.

Answer _____ cm

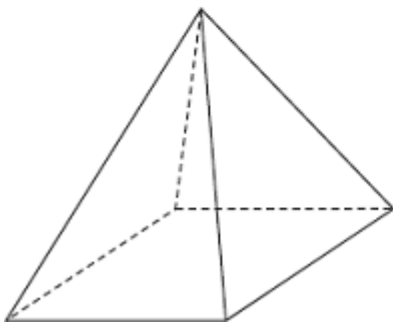
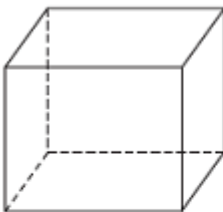
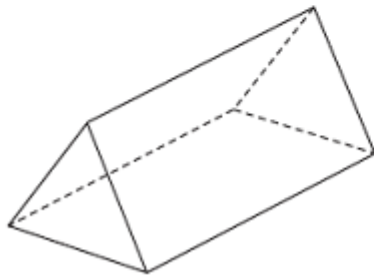
(Total 3 marks)

8 Match the solid to its mathematical name.

The first one has been done for you.



- Sphere
- Cube
- Square-based pyramid
- Triangular prism
- Cylinder
- Cone



(Total 3 marks)

- 9 The episodes of a TV soap are each 50 minutes long.
Ryan watches three episodes together.
How long is he watching TV?
Give your answer in hours and minutes.

Answer _____ hours _____ minutes

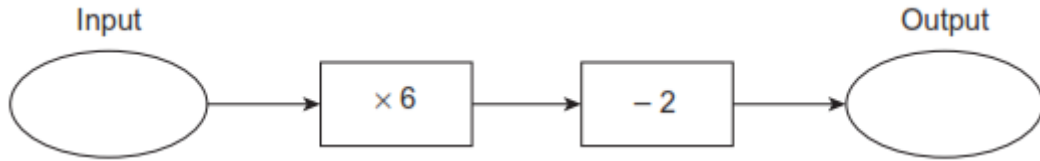
(Total 2 marks)

- 10 Two teachers and 18 students go to the theatre.
The cost of a student's ticket is half of the cost of a teacher's ticket.
The total cost of the tickets is £132.
Work out the cost of one student's ticket.

Answer £ _____

(Total 3 marks)

11 Here is a number machine.



(a) Work out the output when the input is 7.

Answer _____

(b) Work out the input when the output is 1.

Answer _____

(Total 3 marks)

12 Work out the next term for the following sequences.

(a) 5 9.5 14 18.5 ...

Answer _____

(1)

(b) 22 18 14 10 ...

Answer _____

(1)

(c) $\frac{3}{8}$ $\frac{5}{11}$ $\frac{7}{14}$ $\frac{9}{17}$ $\frac{11}{20}$...

Answer _____

(2)

(Total 4 marks)

- 13 The diagram shows a road from *A* to *D*.
 The distance from *A* to *D* is 35 miles.
 The distance from *C* to *D* is 12 miles.

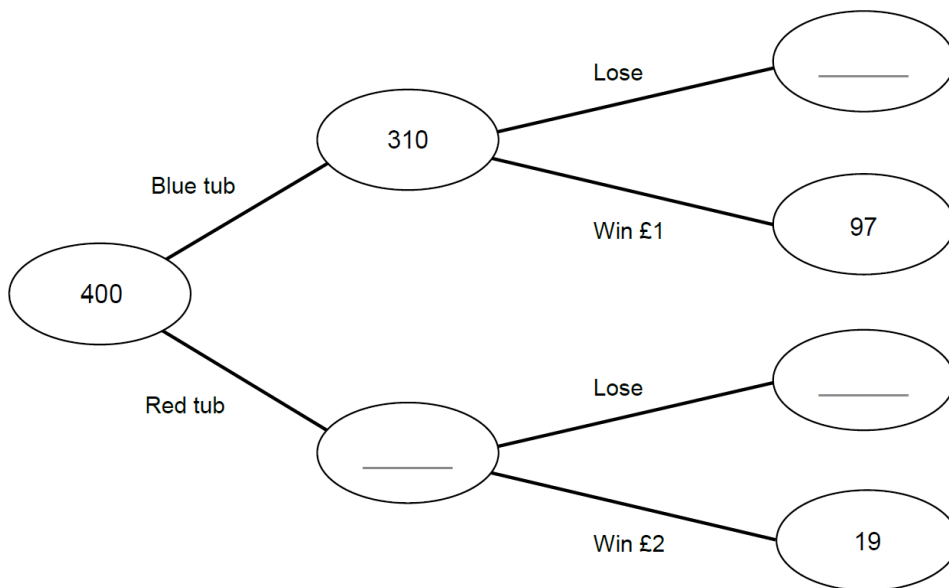


Work out the distance from *A* to *C*.

Answer _____ miles

(Total 1 mark)

- 14 Jack makes a game for a school fair.
 Players can win money by picking a 'Win' ticket from a tub.
 A player chooses a tub by picking a blue disc or a red disc out of a bag.
 400 people play the game at the fair.
 The frequency tree shows some of the outcomes.

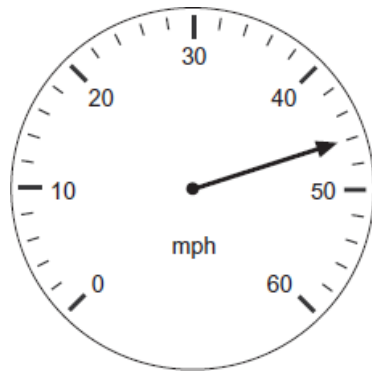


- (a) Complete the frequency tree. (2)
- (b) A player has one go at Jack's game.
 Use the frequency tree to estimate the probability that the player wins some money.

Answer _____ (2)

(Total 4 marks)

15 (a) Write down the speed shown on the speedometer.



Answer _____ mph

(1)

(b) A car travels for 1 hour 30 minutes at an average speed of 28 mph.

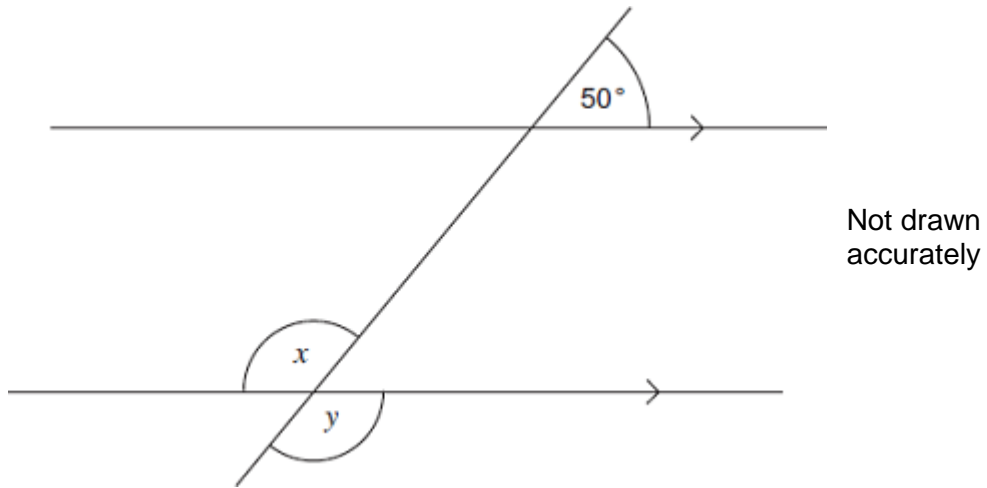
How many miles does the car travel?

Answer _____ miles

(2)

(Total 3 marks)

16



(a) Work out the size of angle x .

Answer _____ degrees

(1)

(b) Which **one** of these describes angles x and y ?

Circle your answer.

alternate angles

corresponding angles

interior angles

vertically opposite angles

(1)

(Total 2 marks)

17 These steps can be used to work out the area of a circle.

Step 1 Square the radius

Step 2 Multiply by 3.14

The area of a circle is known.

Write down the steps to work out the radius.

Step 1 _____

Step 2 _____

(Total 2 marks)

18 Here is a formula.

$$s = 5t^2$$

s is the distance in metres a ball falls when dropped

t is the time taken in seconds

- (a) A ball is dropped from 2 metres above the floor.
Work out the time taken for the ball to hit the floor.

Answer _____ seconds

(3)

- (b) Which of these statements is true for the ball?
Tick a box

It falls 2 metres in **exactly** double the time it falls the first metre.

It falls 2 metres in **less than** double the time it falls the first metre.

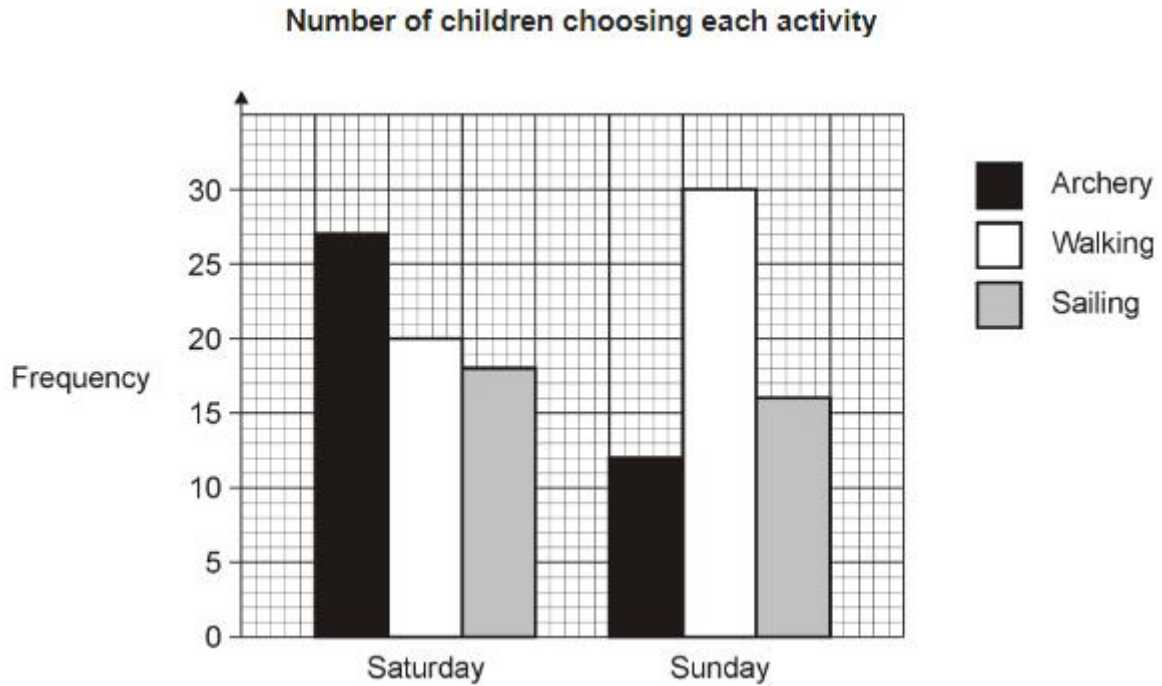
It falls 2 metres in **more than** double the time it falls the first metre.

You **must** show working to support your answer.

(3)

(Total 6 marks)

19 An outdoor centre has activities for children.



(a) Adults help with **walking** in the ratio

number of adults : number of children = 1 : 5

3 adults can help with walking on **Saturday**.

Is this enough?

You **must** show your working.

(2)

(b) A group of people go **sailing** in the ratio

number of adults : number of children = 1 : 2

What fraction of the group are adults?

Answer _____

(1)

- (c) On **Sunday** all the children do the activity they choose, as shown in the graph before part (a) of this question.

The ratios of adult helpers for each activity are shown in the table.

Activity	Number of adults : number of children
Archery	1 : 3
Walking	1 : 5
Sailing	1 : 2

Work out the total number of adults needed for Sunday.

(3)

(Total 6 marks)

- 20** Which sequence is a geometric progression?

Circle your answer.

1 2 3 4

1 2 4 7

1 2 4 8

1 2 3 5

(Total 1 mark)

21 The cash price for a boiler is £2000

Customers can pay the cash price or pay monthly.

Cash Price £2000

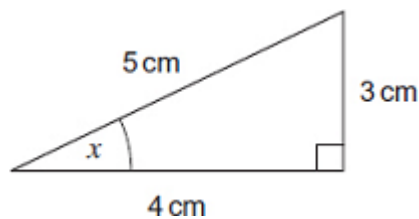
Pay Monthly 60 monthly payments of £40
--

Work out the percentage increase from the cash price when paying monthly.

Answer _____ %

(Total 4 marks)

22 (a) The diagram shows a right-angled triangle.



Not drawn accurately

Write down the value of $\sin x$.

Answer _____

(1)

(b) In a different right-angled triangle, $\tan y = 0.7$

Work out the value of y .

Answer _____ degrees

(1)

(Total 2 marks)

- 23** The table shows information about water used in a household.
The value for April is missing.

Month	Water used (m ³)
January	16.2
February	18.1
March	15.9
April	
May	17.8
June	21.0

The mean monthly water used for the six months is 18 m³

Work out the value for April.

Answer _____ m³

(Total 3 marks)

- 24** $x = 2^2 \times 3 \times 5$ $y = 2 \times 3^2 \times 5^2$

Work out the Highest Common Factor (HCF) of x and y .

Answer _____

(Total 1 mark)

25 Jon is drawing a quadrilateral.

The length of each side is 5.2 cm to 1 decimal place.

(a) Complete the error interval for the length of one side.

Answer _____ cm \leq length < _____ cm

(2)

(b) Complete the error interval for the perimeter.

Answer _____ cm \leq perimeter < _____ cm

(2)

(Total 4 marks)

26 Here are two column vectors.

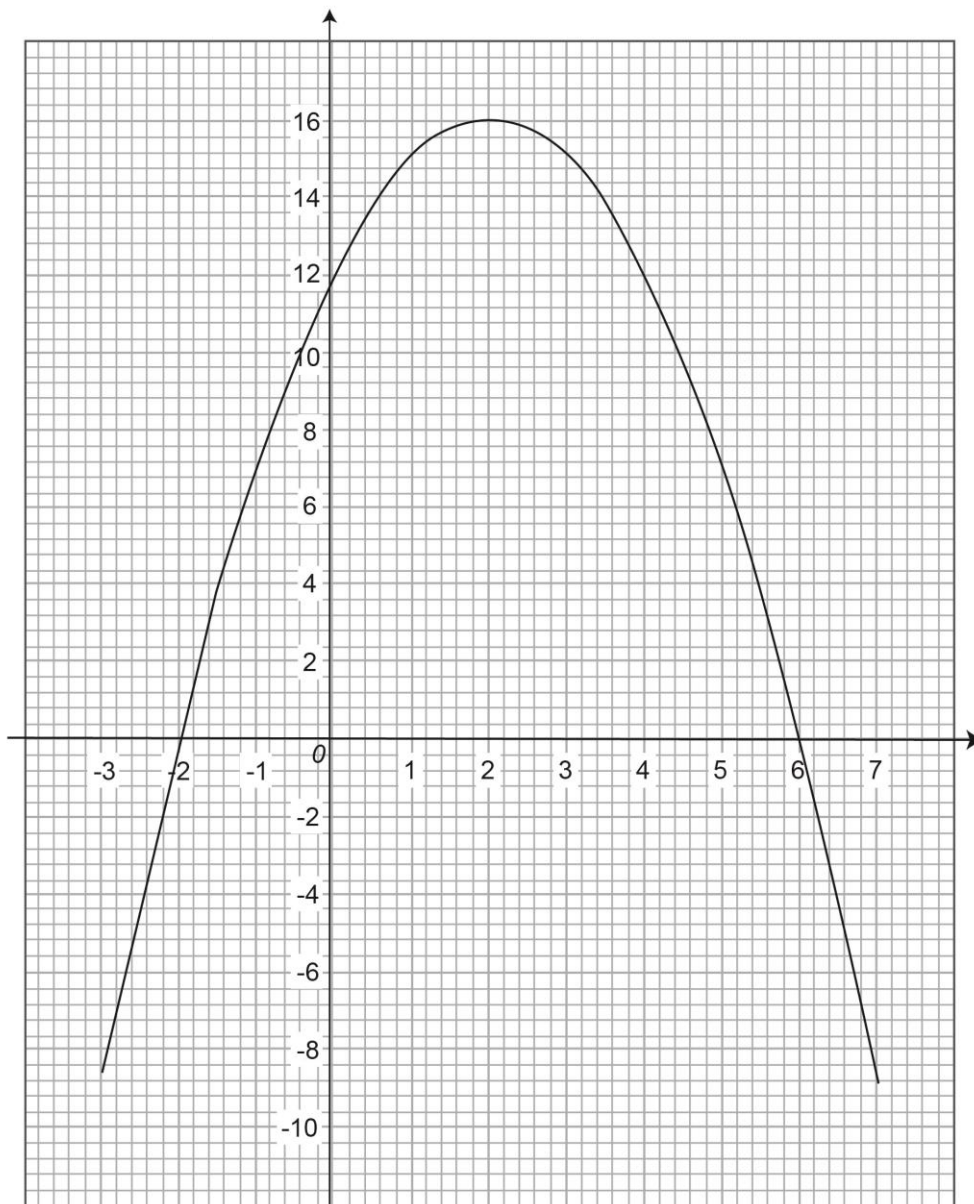
$$\mathbf{f} = \begin{pmatrix} 4 \\ 5 \end{pmatrix} \quad \mathbf{g} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$$

Work out $3\mathbf{f} - 2\mathbf{g}$

Answer _____

(Total 2 marks)

27 The graph $y = a + bx - x^2$ is shown.



(a) Circle the coordinates of the turning point of the curve.

(-2, 0) (0, 12) (2, 16) (6, 0)

(1)

(b) Circle the two roots of $a + bx - x^2 = 0$

-2 and 6 2 and -6 2 and 6 -2 and -6

(1)

(Total 2 marks)