

GCSE Mathematics

2019 Final Predicted Paper 1 (Non-Calculator)

1MA1

Foundation Tier (1hr 40mins)

Remember: *These questions are just a guide. There are no guarantees that these questions/topics will come up! So, revise all you can before the calculator exams!*

Instructions

- Use **black** ink or ball-point pen.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need*
- You must show all your working
- **Calculators may be used**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated

Information

- The total mark for this paper is **94**.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on time.
- Try to answer every question.

Check your answers if you have time at the end.

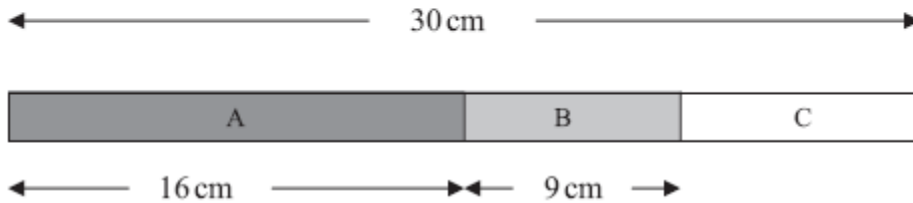
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1.

Diagram NOT accurately drawn



Here is a picture of a stick.
The stick is in three parts, A, B and C.

The total length of the stick is 30 cm.
The length of part A is 16 cm.
The length of part B is 9 cm.

Work out the length of part C.

..... cm

(Total 2 marks)

2. Write these numbers in order of size.
Start with the smallest number.

6 -3 9 -5 4

.....

(Total 1 mark)

b. Change 530 centimetres into metres.

..... metres

(Total 1 mark)

c. Change 0.23 into a fraction.

.....
(Total 1 mark)

d. Change 0.56 into a percentage.

..... %
(Total 1 mark)

3. Write 7.8365 correct to 2 decimal places.

.....
(Total 1 mark)

4. Work out $(-5)^2$

.....
(Total 1 mark)

5 Write $\frac{6}{15}$ as a fraction in its simplest form.

.....
(Total 1 mark)

6 The table gives the height of each of five buildings in England.

Building	Height (m)
Heron Tower	230
CIS Tower	118
Tower 42	183
The Shard	310

Fran says,

“The Heron Tower is more than twice as high as the CIS Tower.”

Fran is wrong.

Explain why.

.....
.....
.....

(Total 1 mark)

7 Here is a list of 10 numbers.

1 3 3 5 5 7 8 8 8 12

(a) Work out the range.

.....
(1)

(b) Find the mode.

.....
(1)

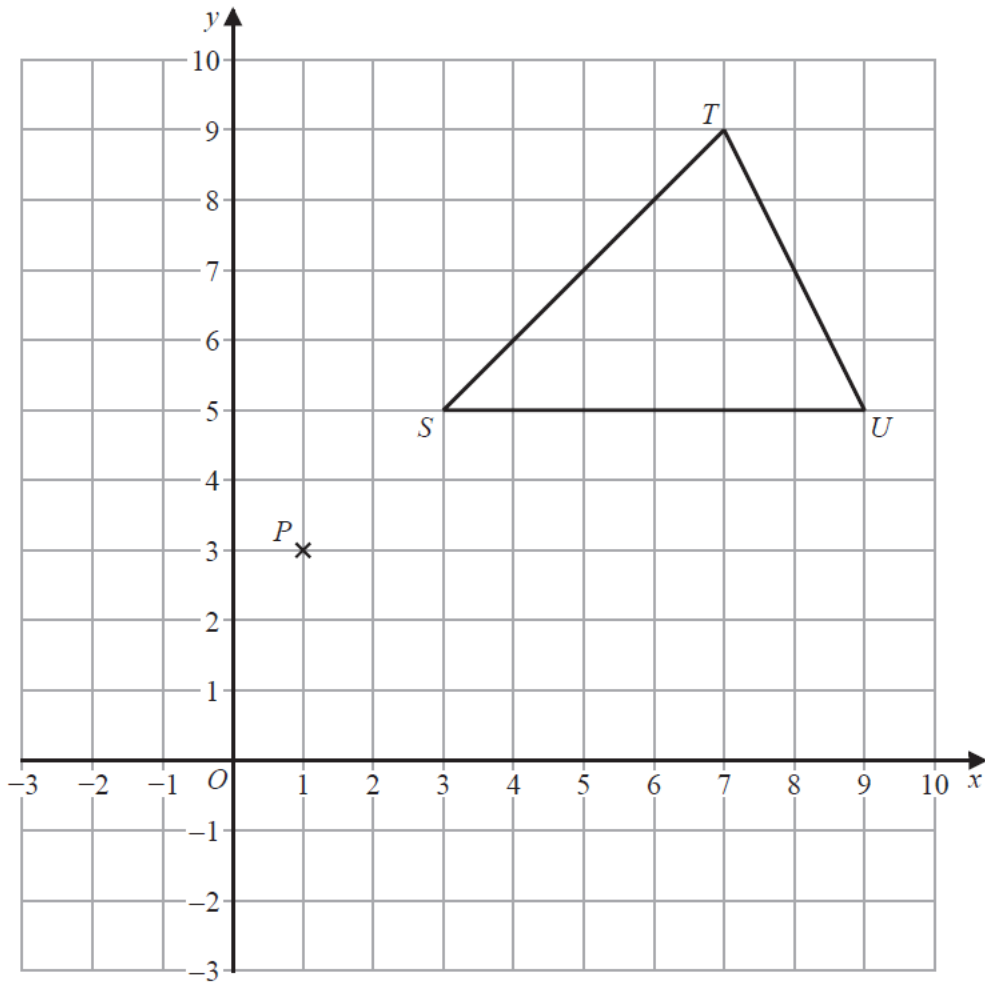
One of the 10 numbers is picked at random.

(c) Write down the probability that this number is 7

.....
(1)

(Total 3 marks)

8 Here is a centimetre grid.



(a) Write down the coordinates of the point P .

(.....,)
(1)

(b) Plot the point with coordinates $(-1, -2)$
Label this point R .

(1)

(c) Find the area of triangle STU .

..... cm^2
(2)

(Total 4 marks)

9. (a) Work out

$$1 - \left(\frac{1}{2} + \frac{1}{6} \right)$$

.....
(3)

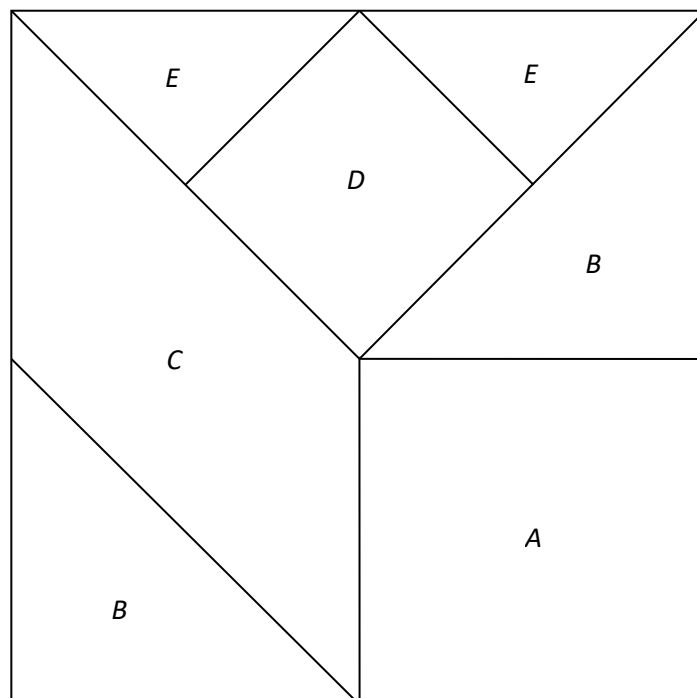
(b) Work out

$$12\frac{1}{2} \div \frac{5}{8}$$

.....
(3)
(Total 6 marks)

10. The diagram shows a Tangram.

Diagram **accurately**
drawn



The Tangram is a large square that is made up from

one square A ,
two triangles B ,
one parallelogram C ,
another square D and
two small triangles E .

The total area of the Tangram is 64 cm^2 .

Find the area of

(i) square A ,

..... cm^2

(ii) triangle B ,

..... cm^2

(iii) parallelogram C .

..... cm^2

(Total 4 marks)

11. (a) Simplify

(i) $3a + 4b - 2a - b$

.....

(ii) $5x^2 + 2x - 3x^2 - x$

.....

(4)

(b) Expand the brackets

(i) $4(2x - 3)$

.....

(ii) $p(q - p^2)$

.....

(2)

(c) Expand and simplify $5(3p + 2) - 2(5p - 3)$

.....

(2)

(Total 8 marks)

12. (a) (i) Write 40 000 000 in standard form.

.....

(ii) Write 3×10^{-5} as an ordinary number.

.....

(2)

(b) Work out the value of

$$3 \times 10^{-5} \times 40\,000\,000$$

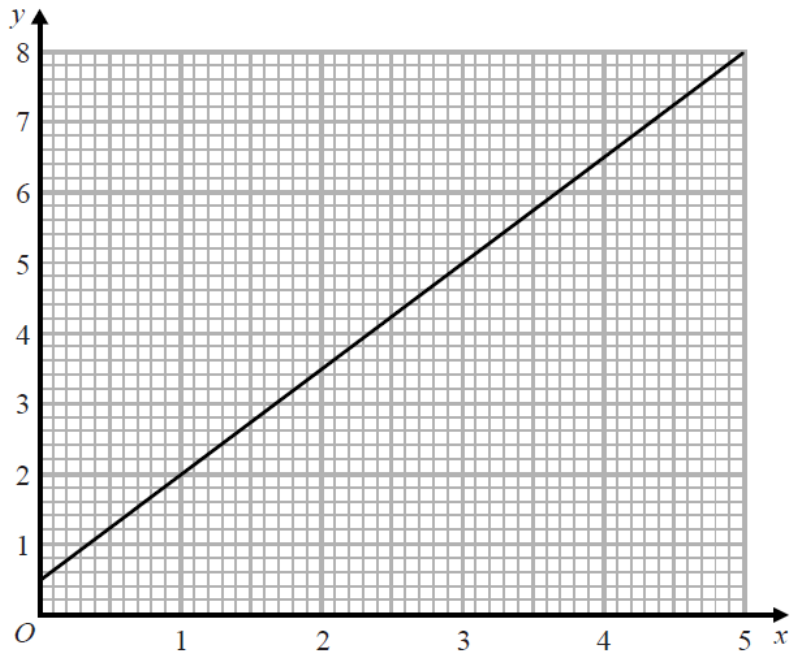
Give your answer in standard form.

.....
(2)
(Total 4 marks)

13. Work out $2\frac{3}{5} - 1\frac{5}{6}$

.....
(Total 3 marks)

14.



Phone calls cost £ y for x minutes.

The graph gives the values of y for values of x from 0 to 5.

(a) (i) Give an interpretation of the intercept of the graph on the y -axis.

.....
.....

(ii) Give an interpretation of the gradient of the graph.

.....
.....

(2)

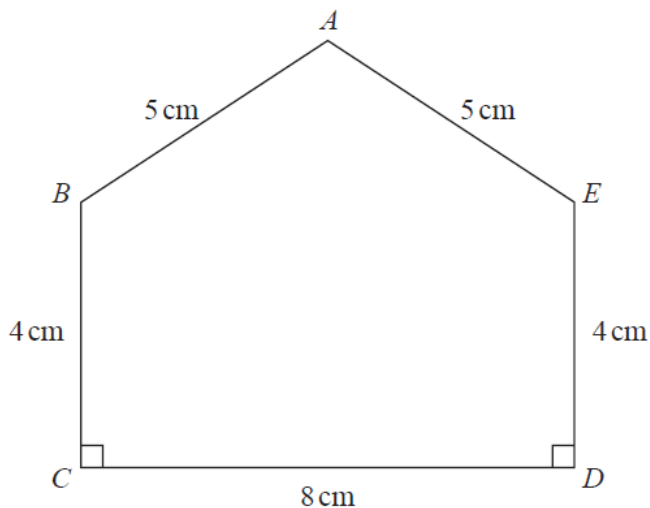
(b) Find the equation of the straight line in the form $y = m x + c$

.....

(3)

(Total 5 marks)

15. $ABCDE$ is a pentagon.



Work out the area of $ABCDE$.

..... cm^2

(Total 5 marks)

16 Work out 6.34×5.2

.....

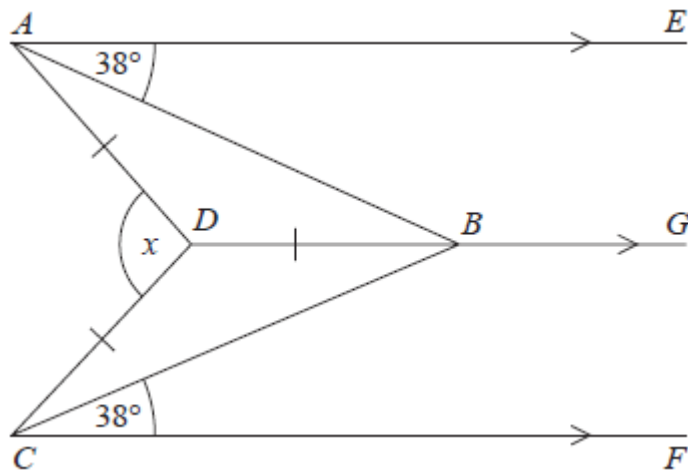
(Total 3 marks)

17 Expand and simplify $(m + 7)(m + 3)$

.....

(Total 2 marks)

18



AE , DBG and CF are parallel.

$DA = DB = DC$.

Angle $EAB =$ angle $BCF = 38^\circ$

Work out the size of the angle marked x .

You must show your working.

.....°

(Total 3 marks)

19 In a city

the number of shops and the number of restaurants are in the ratio 7 : 2

the number of restaurants and the number of pubs are in the ratio 8 : 3

There are 30 pubs in the city.

How many shops are there in the city?

.....
(Total 3 marks)

21 Hannah buys 6 kg of sweets to sell.

She pays £12 for the sweets.

Hannah puts all the sweets into bags.

She puts 250 g of sweets into each bag.

She sells each bag of sweets for 75p.

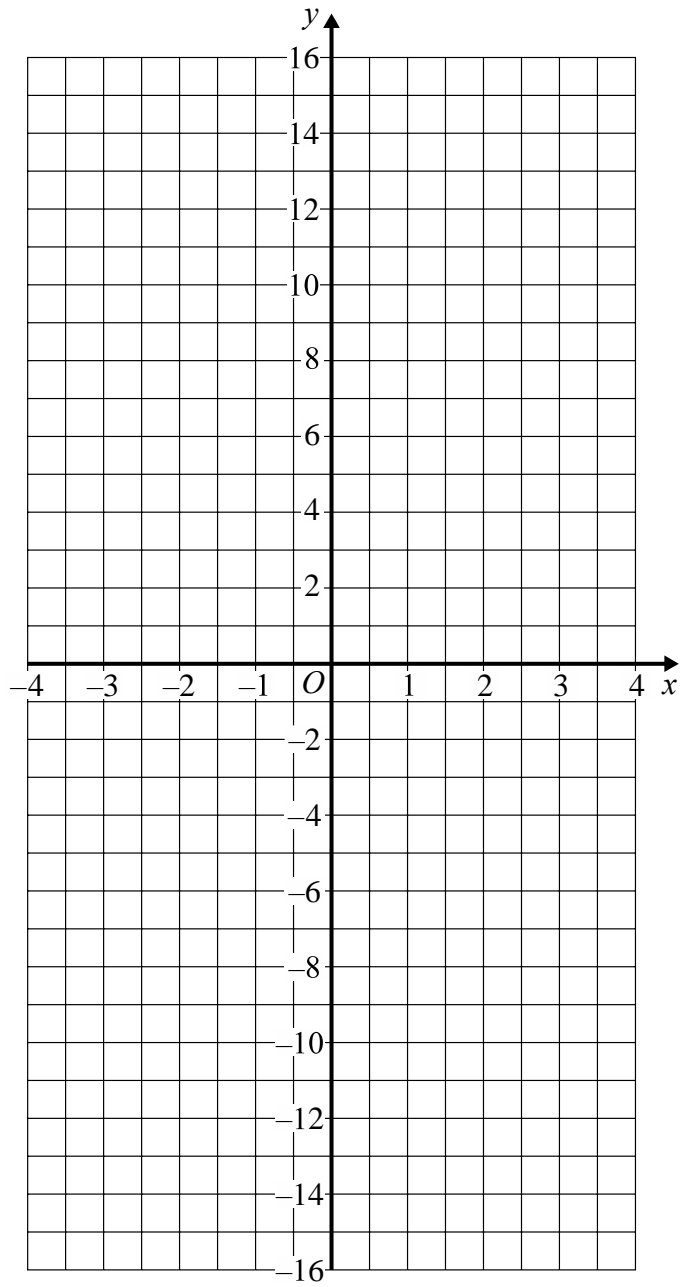
Hannah sells all the bags of sweets.

Work out her percentage profit.

..... %

(Total 4 marks)

22 On the grid below, draw the graph of $y = 1 - 3x$ for values of x from -3 to 3 .



(Total 3 marks)

23 Each student at a college is going to be given a notebook.

The colour of each notebook will be red or blue or green or orange.

Bill takes a sample of 50 of the students at the college.
He asks each of these students what colour of notebook they want.

The table gives Bill's results.

Notebook colour	red	blue	green	orange
Number of students	18	16	10	6

There are 3000 students at the college.

(a) Work out how many red notebooks Bill should buy.

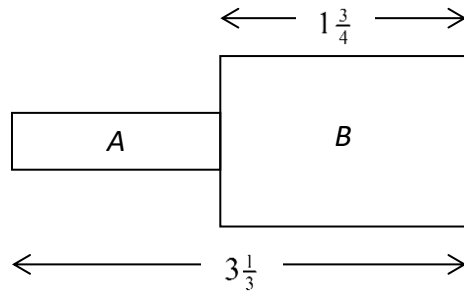
.....
(2)

(b) Write down one assumption that you made in answering part (a).
Explain how your answer would be affected if this assumption were not true.

.....
.....
.....
(1)

(Total 3 marks)

24.



Two rods are fastened together.
The total length is $3\frac{1}{3}$ inches.
The length of rod B is $1\frac{3}{4}$ inches.

Find the length of rod A.

..... inches
(Total 3 marks)

25. (a) (i) Express 72 and 96 as products of their prime factors.

72 =

96 =

(2)

(ii) Use your answer to (i) to work out the Highest Common Factor of 72 and 96.

.....
(2)

(b) Change the decimal $0.4\dot{5}$ into a fraction in its lowest terms.

.....
(2)
(Total 6 marks)

26. (a) Simplify

(i) $\frac{m^2}{m^5}$

.....

(ii) $\frac{h^2 \times h^3}{h}$

.....
(2)

(b) Expand and simplify

(i) $(2x + 3)(x - 2)$

(ii) $(3x - 2)^2$

.....

.....
(2)

(c) Solve the equation

$$x^2 - 3x - 10 = 0$$

.....
(2)

(Total 6 marks)

27 Solve the simultaneous equations

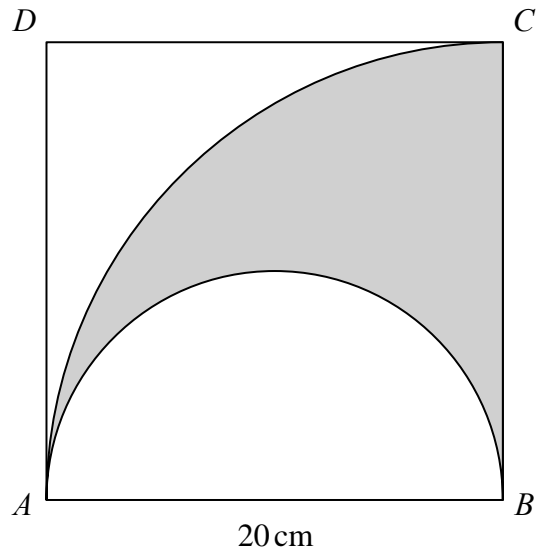
$$\begin{aligned}5x + y &= 21 \\ x - 3y &= 9\end{aligned}$$

$x = \dots\dots\dots$

$y = \dots\dots\dots$

(Total 3 marks)

- 28 The diagram shows a square $ABCD$ with sides of length 20 cm. It also shows a semicircle and an arc of a circle.



AB is the diameter of the semicircle.
 AC is an arc of a circle with centre B .

Show that $\frac{\text{area of shaded region}}{\text{area of square}} = \frac{\rho}{8}$

(Total 4 marks)
