

GCSE Mathematics

Practice Tests: Set 16

Paper 1F (Non-calculator)

Time: 1 hour 30 minutes

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may not be used.**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



Information

- The total mark for this paper is 80
- 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 the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL THIRTY FOUR questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Work out $\frac{1}{8}$ of 624

.....
(Total for Question 1 is 1 mark)

2 Write 0.57 as a fraction.

.....
(Total for Question 2 is 1 mark)

3 Write 0.02 as a percentage.

.....%
(Total for Question 3 is 1 mark)

4 Write $\frac{72}{84}$ as a fraction in its simplest form.

.....
(Total for Question 4 is 1 mark)

5 Write $\frac{22}{5}$ as a mixed number.

.....
(Total for Question 5 is 1 mark)

- 6 The students in class 7T were asked how they got to school one day. Here is a list of their method of travel to school.

walk bus bicycle walk bus
 bicycle walk car bus bicycle
 bus bicycle bus car walk
 walk bus walk walk car

- (a) Complete the frequency table for the methods of travel in the list.

Method of travel	Tally	Frequency
walk		
bus		
bicycle		
car		

(2)

- (b) Draw a bar chart for the information in your table.



(3)

(Total for Question 6 is 5 marks)

- 7 A bag contains 30 coloured counters.
The table gives the number of counters of each colour.

Colour	Red	Green	Yellow	Blue
Number of counters	7	13	4	6

One of the counters is taken at random from the bag.

- (a) Write down the probability that this counter is green.

.....
(1)

- (b) Write down the probability that this counter is **not** red.

.....
(2)

(Total for Question 7 is 3 marks)

8 The temperature in New York is $-2\text{ }^{\circ}\text{C}$
At the same time, the temperature in Rabat is $16\text{ }^{\circ}\text{C}$ higher than the temperature in New York.

(a) Work out the temperature in Rabat.

..... $^{\circ}\text{C}$
(1)

Also, at the same time, the temperature in Helsinki is $17\text{ }^{\circ}\text{C}$ lower than the temperature in New York.

(b) Work out the temperature in Helsinki.

..... $^{\circ}\text{C}$
(1)

(Total for Question 8 is 2 marks)

9 Solve $x - 7 = 19$

$x =$

(Total for Question 9 is 1 mark)

10 (a) Simplify $10x + 4y + 3x - 6y$

.....
(2)

(b) Solve $2n + 5 = 16$

$n =$
(2)

(Total for Question 10 is 4 marks)

11 Here is a list of numbers in a box.

6	8	17	36	44	76	91
---	---	----	----	----	----	----

From the numbers in the list, write down

(a) a multiple of 11

.....
(1)

(b) a factor of 30

.....
(1)

(c) a square number

.....
(1)

(d) a prime number

.....
(1)

(e) two numbers whose sum is 84

..... and
(1)

(Total for Question 1 is 5 marks)

12 Simplify $5c \times 4d$

.....
(Total for Question 12 is 1 mark)

- 13** Put the following numbers in order of size.
Start with the smallest number.

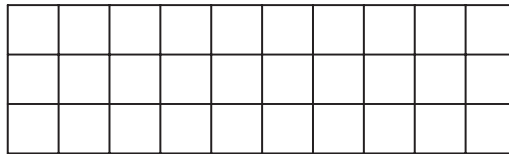
0.76 25% 0.0766 8% 0.026

.....
(Total for Question 13 is 2 marks)

- 14** Simplify $e \times e \times e \times e \times e$

.....
(Total for Question 14 is 1 mark)

15 A rectangle is made from 30 small coloured square tiles.



There are yellow tiles, blue tiles and red tiles.

30% of the rectangle is made from yellow tiles.

$\frac{1}{3}$ of the rectangle is made from blue tiles.

The rest of the rectangle is made from red tiles.

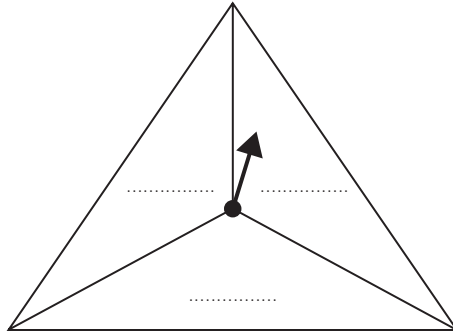
Work out the number of red tiles.

.....
(Total for Question 15 is 3 marks)

16 Sandeep is designing some 3-sided spinners.

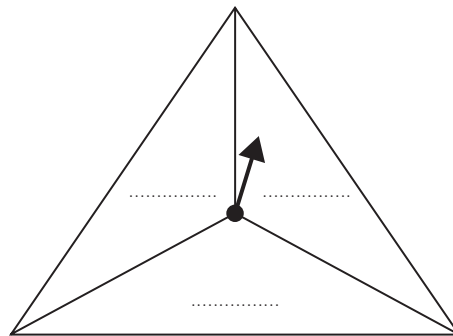
He is going to spin each spinner once.

- (a) (i) Write a different number on each dotted line so that when the spinner is spun it is **impossible** that the spinner will land on a number greater than 9



(1)

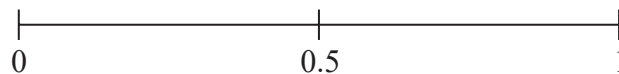
- (ii) Write a different number on each dotted line so that when the spinner is spun it is **certain** that the spinner will land on a multiple of 10



(1)

The likelihood of an outcome is **evens**.

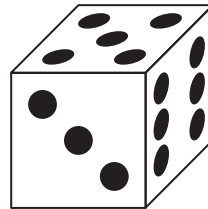
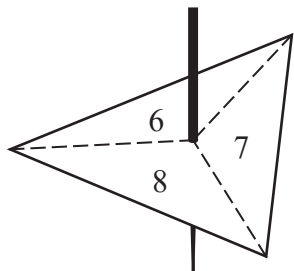
- (b) On the probability scale, mark with a cross (X) the probability of this outcome.



(1)

(Total for Question 16 is 3 marks)

- 17 Grace has a fair spinner and a fair dice.
 The spinner is 3-sided and can land on 6, 7 or 8
 The dice can land on 1, 2, 3, 4, 5 or 6



Grace spins the spinner once and throws the dice once.

Grace subtracts the number that the dice lands on from the number that the spinner lands on to get her score.

- (a) Complete the table to show all possible scores.
 Eight of the scores have been done for you.

		Number on dice					
		1	2	3	4	5	6
Number on spinner	6	5	4	3	2	1	0
	7			4			
	8		6				

(2)

Grace spins the spinner once and throws the dice once.

- (b) Find the probability that her score is less than 6

.....
 (1)

- (c) Find the probability that her score is an odd number.

.....
 (1)

(Total for Question 17 is 4 marks)

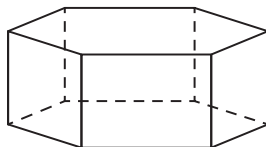
18 Expand $x(4 - x)$

.....
(Total for Question 18 is 1 mark)

19 Simplify $p + p + p + p + p + p$

.....
(Total for Question 19 is 1 mark)

20 The diagram shows a solid prism.



(a) How many vertices has the prism?

.....
(1)

(b) How many faces has the prism?

.....
(1)

(Total for Question 20 is 2 marks)

21 Simplify $5y^2 + 6y^2 - 3y^2$

.....
(Total for Question 21 is 1 mark)

22 Ava writes down five whole numbers.

For these five numbers

the median is 7

the mode is 8

the range is 5

Find a possible value for each of the five numbers that Ava writes down.

.....
(Total for Question 22 is 3 marks)

- 23** Using ruler and compasses only, in the space below construct the equilateral triangle ABC with sides of length 7 cm.
You must show all your construction lines.
Side AB has already been drawn for you.

A ————— B

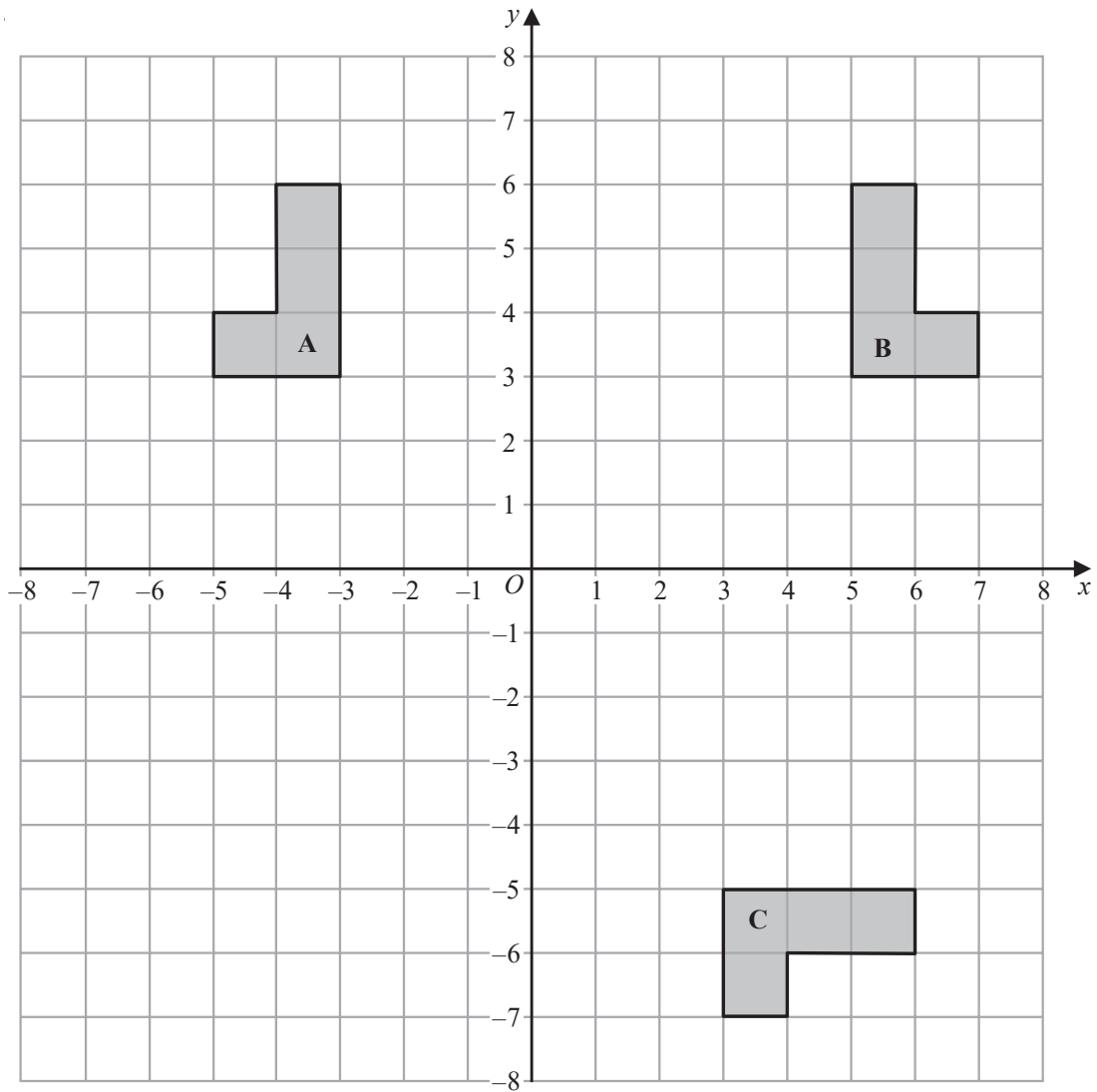
(Total for Question 23 is 2 marks)

- 24** Show that $\frac{5}{6} - \frac{3}{8} = \frac{11}{24}$

(Total for Question 24 is 2 marks)

- 25** Factorise $9t - 6$

.....
(Total for Question 25 is 1 mark)



(a) Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

(2)

(b) Describe fully the single transformation that maps shape **B** onto shape **C**.

.....

(3)

(Total for Question 26 is 5 marks)

27 (a) Write 2 840 000 000 in standard form.

.....
(1)

(b) Write 2.5×10^{-4} as an ordinary number.

.....
(1)

(Total for Question 27 is 2 marks)

28 (a) Expand and simplify $4x(2x + 5) - 3x(2x - 3)$

.....
(Total for Question 28 is 2 marks)

- 29** $\mathcal{E} = \{20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}$
 $A = \{\text{odd numbers}\}$
 $B = \{\text{multiples of 3}\}$

List the members of the set

(i) $A \cap B$

.....
(1)

(ii) $A \cup B$

.....
(1)

(Total for Question 29 is 2 marks)

30 $\frac{y^5 \times y^n}{y^6} = y^{13}$

Work out the value of n .

$n = \dots\dots\dots$

(Total for Question 30 is 2 marks)

31 Make d the subject of $y = dx - e$

.....
(Total for Question 31 is 2 marks)

32 (a) Simplify $(2x^3y^5)^4$

.....
(2)

(b) (i) Factorise $x^2 + 5x - 36$

.....
(2)

(ii) Hence, solve $x^2 + 5x - 36 = 0$

.....
(1)

(Total for Question 32 is 5 marks)

33 (a) Factorise fully $15y^4 + 20uy^3$

.....
(2)

(b) Solve $4 - 3x = \frac{5 - 8x}{4}$

Show clear algebraic working.

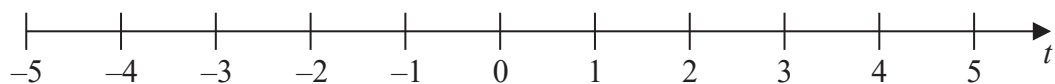
$x =$
(3)

(Total for Question 33 is 5 marks)

34 (a) Solve the inequality $7t - 8 < 2t + 7$

.....
(2)

(b) On the number line below, represent the solution set of the inequality solved in part (c)(i)



(1)

(Total for Question 34 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS