GCSE Mathematics Practice Tests: Set 13

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

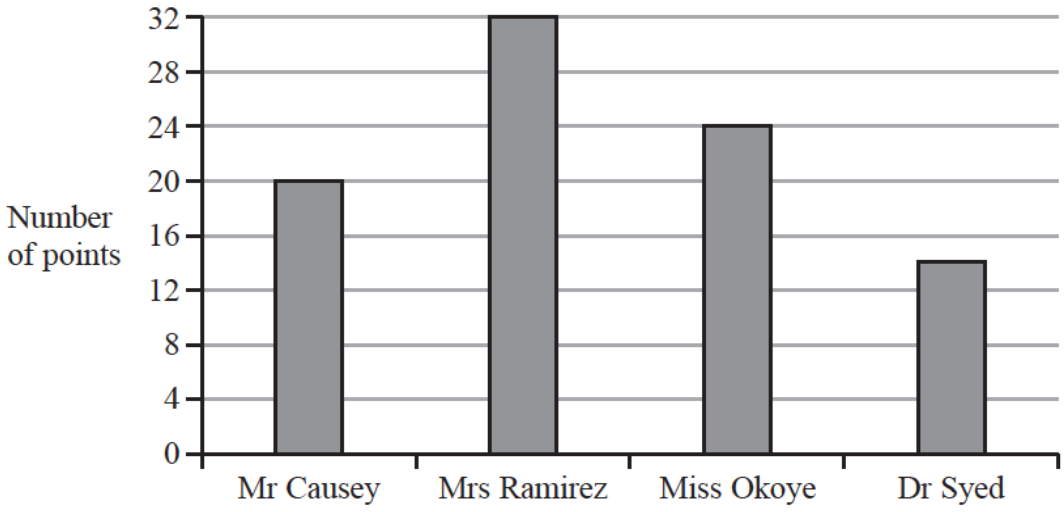
- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions.

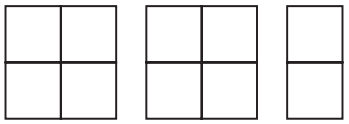
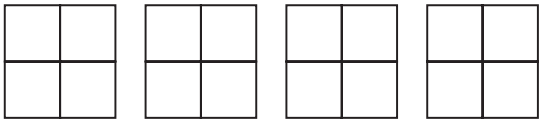
Write your answers in the spaces provided.

You must write down all the stages in your working.

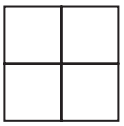
1 The bar chart gives information about the number of points scored by each of four teachers in a quiz.



Joseph starts to draw a pictogram, shown below, for this information.
The pictogram shows the number of points scored by Mr Causey and the number of points scored by Mrs Ramirez.

Mr Causey	
Mrs Ramirez	
Miss Okoye	
Dr Syed	

Key:



represents .....points

Complete the pictogram, including the key.

(Total for Question 1 is 4 marks)

2 At 6 p.m., the temperature in Victoria's garden was 5 °C.
By midnight, the temperature in Victoria's garden had fallen by 9 °C.

(*a*) Work out the temperature in Victoria's garden at midnight.

.....°C
(2)

Here is a list of 7 temperatures.

4 °C −6 °C 4 °C 0 °C −1 °C −7 °C −5 °C

(*b*) For the 7 temperatures in the list,

(i) write down the mode,

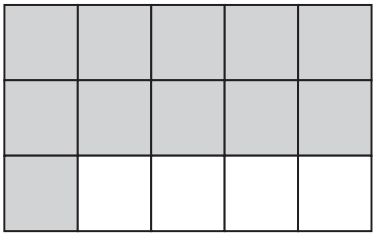
.....°C
(1)

(ii) find the median.

.....°C
(2)

(Total for Question 2 is 5 marks)

3 Here is a shape made from squares.



(*a*) What fraction of this shape is shaded?

.....

(1)

(*b*) Write $\frac{23}{5}$ as a mixed number.

.....

(1)

(*c*) Write 0.23 as a fraction.

.....

(1)

(*d*) Write $\frac{2}{5}$ as a decimal.

.....

(1)

(*e*) Write these decimals in order of size.
Start with the smallest decimal.

3.61 3.9 3.555 3.82 3.7

.....

(1)

(Total for Question 3 is 5 marks)

4 Paul is buying a sandwich and a drink in a meal deal.
He can have a cheese sandwich (*C*) or an egg sandwich (*E*) or a tomato sandwich (*T*).
He can have orange juice (*O*) or milk (*M*) or water (*W*) to drink.

Write down all the possible combinations Paul can buy.

.....

.....

.....

(Total for Question 4 is 2 marks)

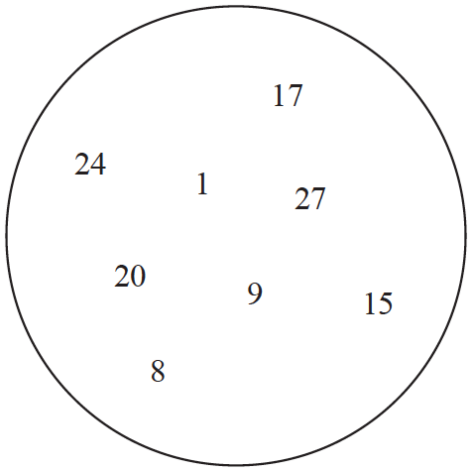
5

3	2	6	8

(*a*) Write down the largest possible four digit number using all the digits that are in the box.

.....

(1)



From the numbers in the circle, write down

(*b*) a multiple of 6

.....

(1)

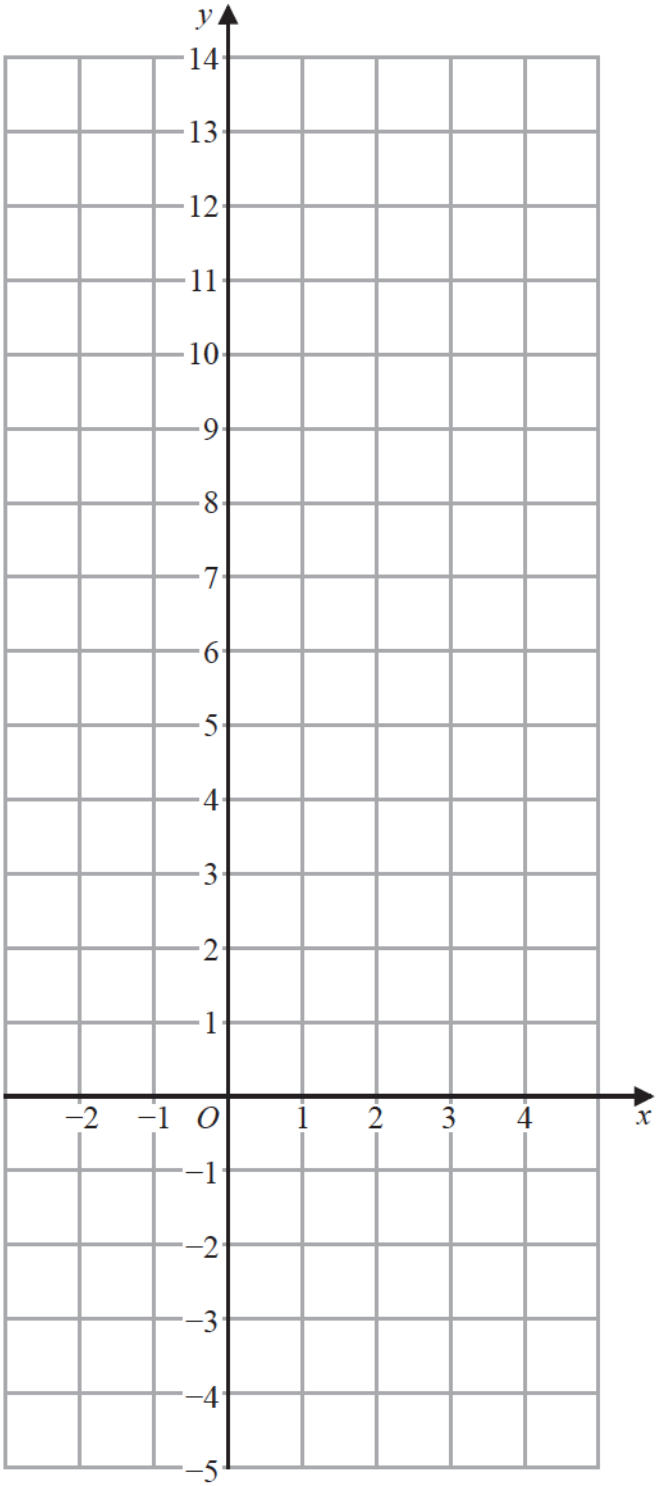
(*c*) a prime number

.....

(1)

(Total for Question 5 is 3 marks)

6 On the grid, draw the graph of $y = 3x + 2$ for values of x from -2 to 4



(Total for Question 6 is 3 marks)

7 (*a*) Simplify $3r \times 5t$

.....

(1)

(*b*) Solve $4x + 5 = 27$

$x =$ .....

(2)

$P = 7w - 5y$

(*c*) Find the value of P when $w = 2$ and $y = 4$

$P =$ .....

(2)

$Q = 2u^2 - 5$

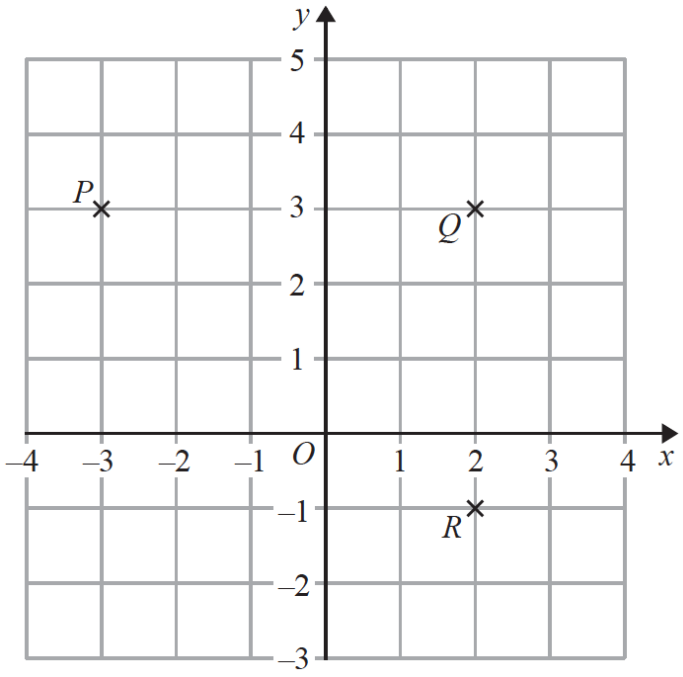
(*d*) Find the value of Q when $u = -3$

$Q =$ .....

(2)

(Total for Question 7 is 7 marks)

8 P, Q and R are three points marked on a grid.



(a) Write down the coordinates of point Q.

(..... , ...)

(1)

S is the point such that $PQRS$ is a rectangle.

(b) Find the coordinates of point S.

(..... , ...)

(1)

(c) Find the coordinates of the midpoint of PR.

(..... , ...)

(2)

(Total for Question 8 is 4 marks)

9 (*a*) Write in figures the number **seventy thousand, two hundred and sixteen**.

.....

(1)

(*b*) Write down a common factor of 20 and 30

.....

(1)

(*c*) Write down a square number that is between 20 and 40

.....

(1)

(*d*) Find the cube root of 3375

.....

(1)

(*e*) Write brackets in the following calculation so that the answer is correct.

$$42 - 6 \div 6 - 3 = 40$$

(1)

(Total for Question 9 is 5 marks)

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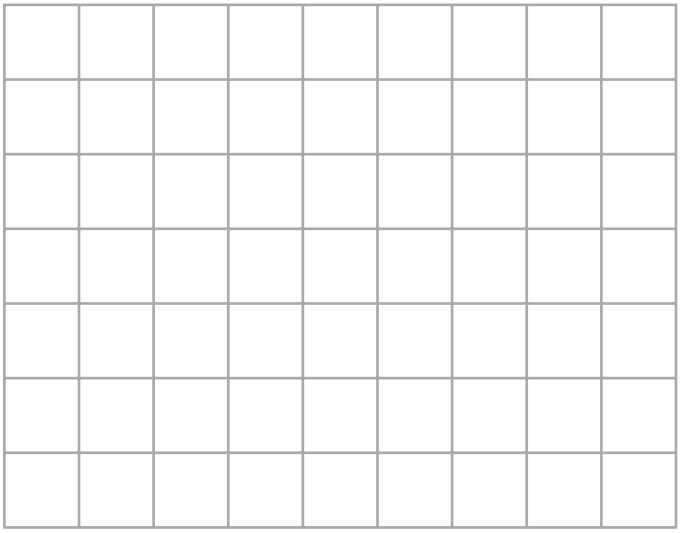
10 (*a*) On the grid below, draw a kite.



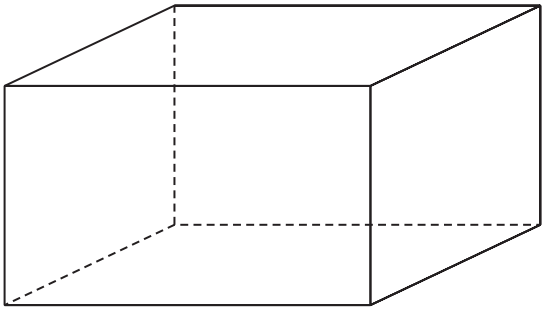
(1)

(*b*) Write down the mathematical name of an 8-sided polygon.

.....

(1)

Here is a solid prism.



(*c*) (i) Write down the mathematical name of this prism.

.....

(ii) How many vertices does the prism have?

.....

(2)

(Total for Question 10 is 4 marks)

11 Egor rolled a dice 24 times.
Here are his results.

2	3	5	4	6	2
1	3	3	5	1	3
3	5	5	6	2	5
4	3	4	3	3	4

(*a*) Complete the frequency table for Egor's results.

Number on dice	Tally	Frequency
1		
2		
3		
4		
5		
6		

(2)

(*b*) Write down the mode of the numbers that Egor rolled.

.....

(1)

Egor thinks the dice he rolled is biased.

(*c*) Give a reason why the results could show that the dice is biased.

.....

.....

.....

(1)

(Total for Question 11 is 4 marks)

12 (*a*) Simplify $k + k + k + k$

.....

(1)

$$f = 9 \times 9 \times 9 \times 9$$

(*b*) (i) Write f as a single power of 9

.....

(ii) Write f as a single power of 3

.....

(2)

(*c*) Write $5^{17} \times 5^2$ as a single power of 5

.....

(1)

(*d*) Write 800 as a product of its prime factors.
Show your working clearly.

.....

(2)

(Total for Question 12 is 6 marks)

13 (*a*) Make *a* the subject of $d = g + 2ac$

.....

(2)

(*b*) Factorise fully $9ef - 12f$

.....

(2)

(*c*) Expand and simplify $(x + 2)(x - 5)$

.....

(2)

(*d*) Simplify fully $\dfrac{n^4 \times n^7}{n^5}$

.....

(2)

(Total for Question 13 is 8 marks)

14 (*a*) Expand $e(3e - 5)$

.....

(1)

(*b*) Factorise $35 + 5f$

.....

(1)

(*c*) Simplify $(4pq^2)^3$

.....

(2)

(Total for Question 14 is 4 marks)

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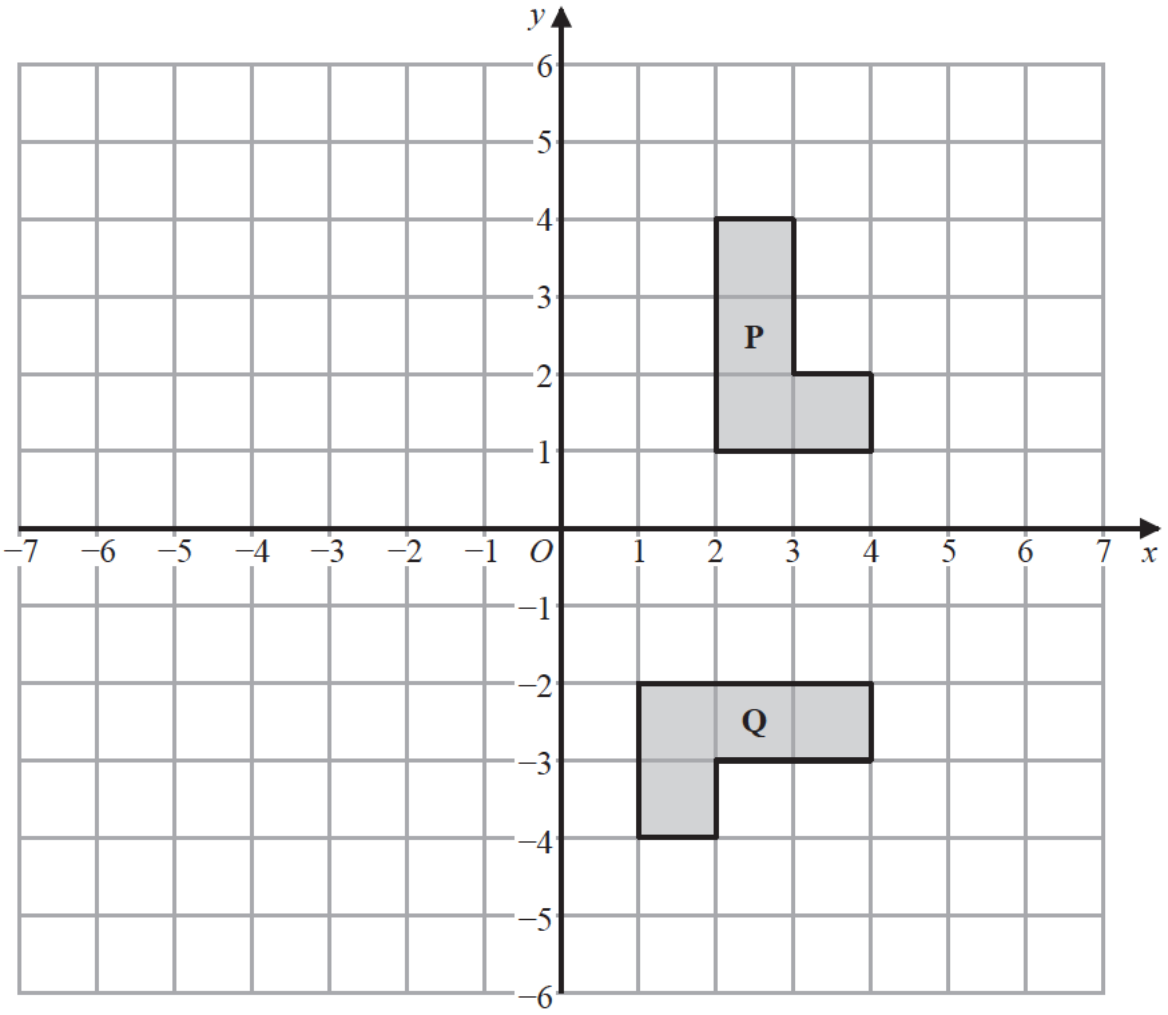
15 Write down the integer values of x that satisfy the inequality $-2 < x \leq 4$

.....

(Total for Question 15 is 2marks)

16



(*a*) Describe fully the single transformation that maps shape **P** onto shape **Q**.

.....

.....

(3)

(*b*) On the grid, reflect shape **P** in the line $x = -1$
Label the new shape **R**.

(2)

(Total for Question 16 is 5 marks)

17 Show that $3\frac{1}{5} \times 2\frac{5}{8} = 8\frac{2}{5}$

(Total for Question 17 is 3 marks)

18 Solve the simultaneous equations

$$3x + 5y = 6$$
$$7x - 5y = -11$$

Show clear algebraic working.

$x =$ .....

$y =$ .....

(Total for Question 18 is 3 marks)

19 Solve $x^2 - 5x - 36 = 0$
Show clear algebraic working.

.....

(Total for Question 19 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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