

GCSE Mathematics

Practice Tests: Set 18

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
- Questions are in order of mean difficulty as found by students achieving Grade 4.
- 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

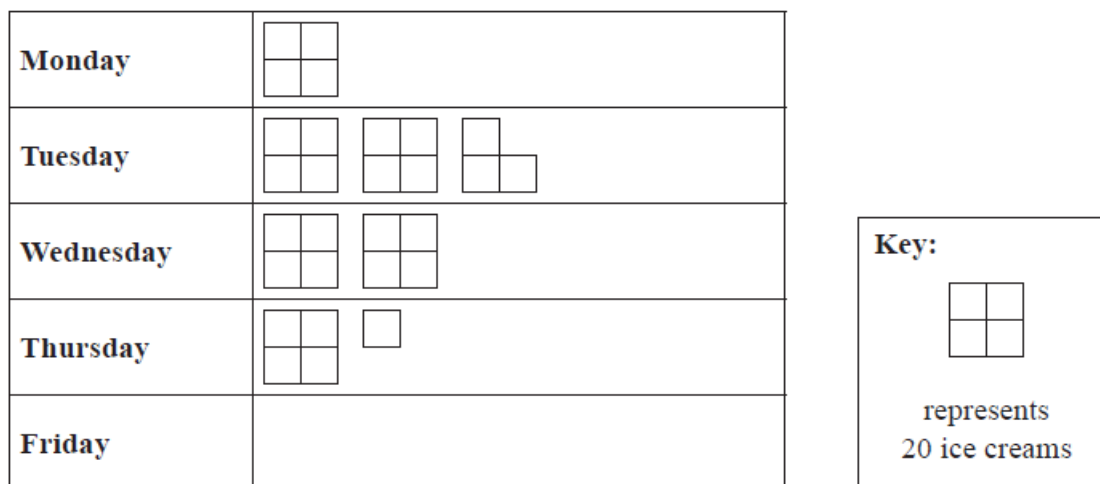
- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL NINETEEN questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 The pictogram shows information about the number of ice creams Sandeep sold on each of four days last week.



- (a) How many ice creams did Sandeep sell on Thursday?

.....
(1)

Sandeep sold 30 ice creams on Friday.

- (b) Complete the pictogram to show the number of ice creams Sandeep sold on Friday. (1)

- (c) On which day was the least number of ice creams sold?

.....
(1)

- (d) Work out the total number of ice creams Sandeep sold last week.

.....
(2)

(Total for Question 1 is 5 marks)

2 (a) Simplify $4x + 5x - 2x$

.....

(1)

(b) Simplify $4p \times 7$

.....

(1)

(Total for Question 2 is 2 marks)

3 Here are five fractions.

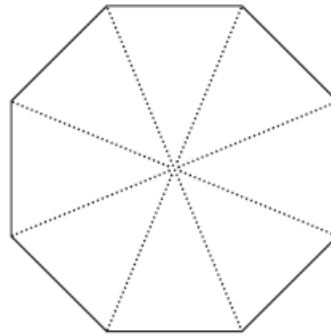
$\frac{2}{8}$	$\frac{3}{9}$	$\frac{5}{25}$	$\frac{7}{28}$	$\frac{8}{40}$

Two of the fractions in the table are equivalent to $\frac{1}{5}$

(a) Put a tick (✓) in the box underneath each of these two fractions.

(2)

The diagram shows an 8-sided polygon and its diagonals.



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

.....
(1)

(c) Shade $\frac{3}{4}$ of the polygon shown in the diagram above.

(1)

The area of a polygon is 56 cm^2

(d) Find $\frac{3}{4}$ of 56

.....
(2)

(Total for Question 3 is 6 marks)

4 (a) Change 5.48 metres into centimetres.

..... cm
(1)

(b) Change 4600 millilitres into litres.

..... litres
(1)

Here is an isosceles triangle ABC .

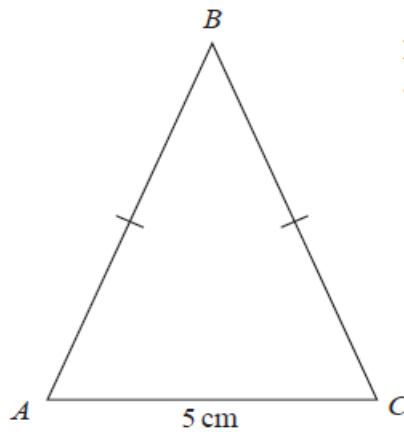


Diagram **NOT**
accurately drawn

$AC = 5$ cm.

The perimeter of the triangle is 32 cm.

(c) Work out the length of AB .

..... cm
(2)

(Total for Question 4 is 4 marks)

5 Here are the first four terms of a number sequence.

4 8 12 16

(a) Write down the next term of the sequence.

.....
(1)

(b) Explain how you found your answer to part (a).

.....
(1)

(c) Find an expression, in terms of n , for the n th term of the sequence.

.....
(1)

(Total for Question 5 is 3 marks)

6 Adisha plays basketball for her school.

Here is the number of points that she scored in each of nine games.

15 16 15 18 17 15 13 19 18

(a) Find the mode of the numbers of points that Adisha scored.

.....
(1)

(b) Work out the range of the numbers of points that Adisha scored.

.....
(2)

(Total for Question 6 is 3 marks)

7 (a) Solve $5x = 20$

$x = \dots\dots\dots$
(1)

(b) Simplify $3a \times 8b$

$\dots\dots\dots$
(1)

(c) Simplify $8w - 4y + w - 3y$

$\dots\dots\dots$
(2)

(d) Factorise fully $16 + 12t$

$\dots\dots\dots$
(2)

(Total for Question 7 is 6 marks)

- 8** (a) Write these numbers in order of size.
Start with the smallest number.

2.12 2.19 2.07 2.1 2.001

.....
(1)

- (b) Write down the value of 6 in the number 54.623

.....
(1)

- (c) Write the number 3.4896 correct to 2 decimal places.

.....
(1)

- (d) Write 0.6 as a percentage.

.....%
(1)

(Total for Question 8 is 4 marks)

- 9 The table shows the temperatures recorded at midnight and at midday for each of five North American cities on a Monday one week.

City	Midnight temperature ($^{\circ}\text{C}$)	Midday temperature ($^{\circ}\text{C}$)
Boston	-2	14
Houston	11	20
Chicago	-8	7
Detroit	-7	-1
New York	0	12

- (a) Which city had the lowest midnight temperature?

.....
(1)

- (b) Find the difference between the midnight temperature and midday temperature for Boston.

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

From Monday to Thursday, the midday temperature in Detroit increased by 2°C each day.

- (c) Work out the midday temperature in Detroit on Thursday.

..... $^{\circ}\text{C}$
(2)

(Total for Question 9 is 4 marks)

10 (a) Write down the value of m , given that $3^4 \times 3^5 = 3^m$

$m = \dots\dots\dots$

(1)

(b) Write down the value of n , given that $(5^3)^7 = 5^n$

$n = \dots\dots\dots$

(1)

(c) Find the value of p , given that $\frac{7^8 \times 7^2}{7^p} = 7^6$

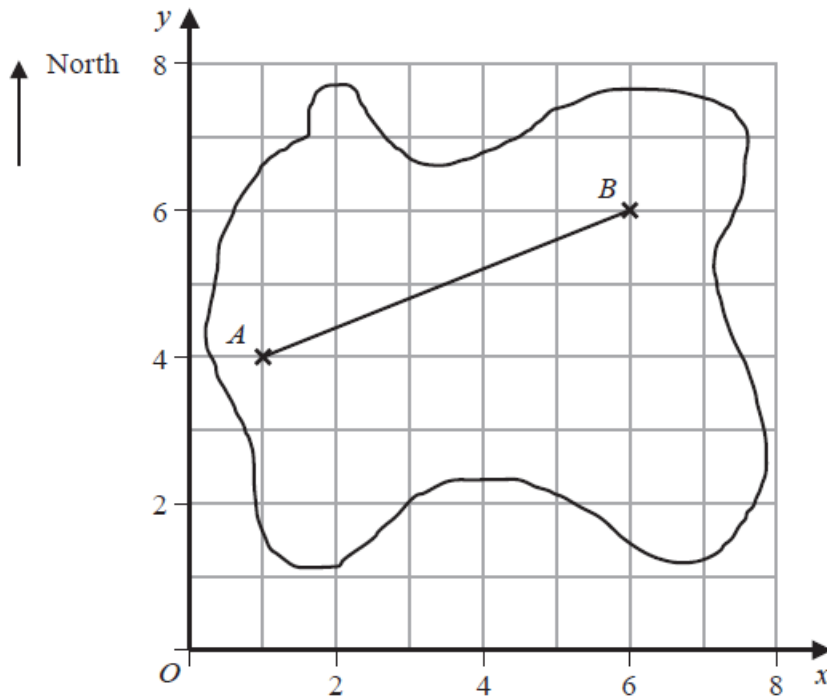
$p = \dots\dots\dots$

(2)

(Total for Question 10 is 4 marks)

TURN OVER FOR QUESTION 11

11 The accurate scale diagram shows the map of an island drawn on a centimetre grid.



The position of Aaron's house is A .
The position of Bharat's house is B .

(a) Write down the coordinates of A .

(.....,)
(1)

(b) By measurement, find the bearing of A from B .

.....°
(2)

(c) Measure the length of the line AB .
Give your answer in centimetres correct to one decimal place.

.....cm
(1)

Aaron cycled along a straight path from his house to Bharat's house.
The scale of the map is 1 cm represents 5 km.

(d) Work out the distance, in kilometres, that Aaron cycled.

.....km
(1)

Aaron left his house at 10 45 a.m. and arrived at Bharat's house at 1 05 p.m.

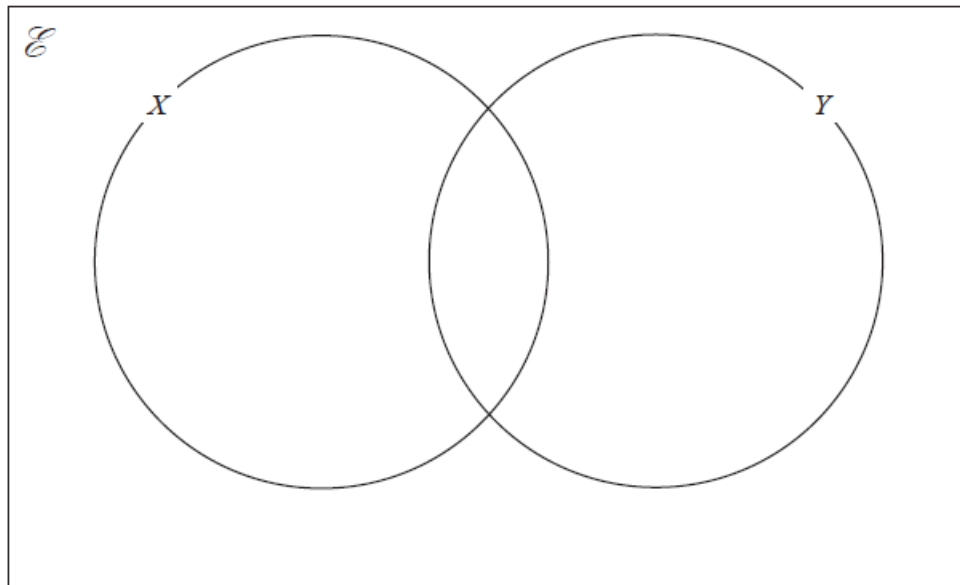
(e) How long did Aaron's cycle ride take him?
Give your answer in hours and minutes.

..... hours minutes
(2)

(Total for Question 11 is 7 marks)

- 12 $\mathcal{E} = \{2, 4, 6, 8, 10, 12, 14, 16, 18\}$
 $X = \{4, 8, 12, 16\}$
 $Y = \{6, 12, 18\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from \mathcal{E}

(b) Find the probability that the number is in the set $X \cup Y$

.....
(2)

(Total for Question 12 is 5 marks)

13 (a) Show that $\frac{3}{10} \div \frac{1}{4} = \frac{6}{5}$

(2)

(b) Show that $\frac{5}{6} - \frac{3}{4} = \frac{1}{12}$

(2)

(Total for Question 13 is 4 marks)

14 (a) Simplify $e^8 \div e^2$

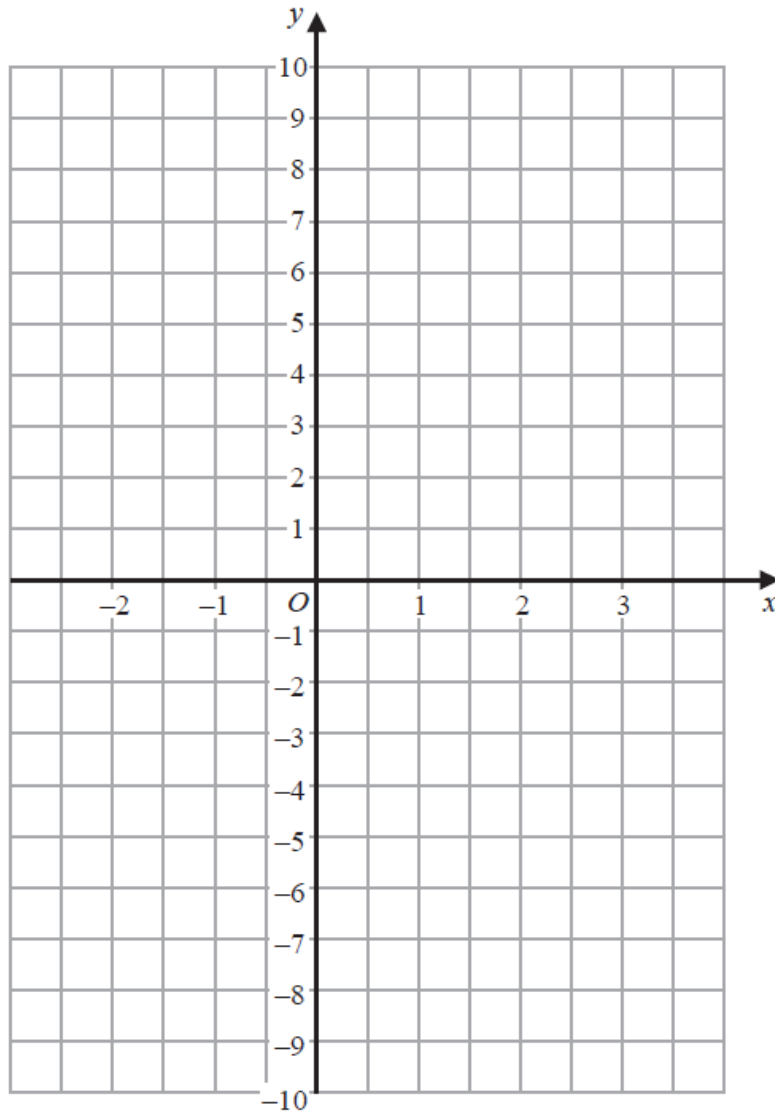
.....
(1)

(b) Expand and simplify $(x - 3)(x + 1)$

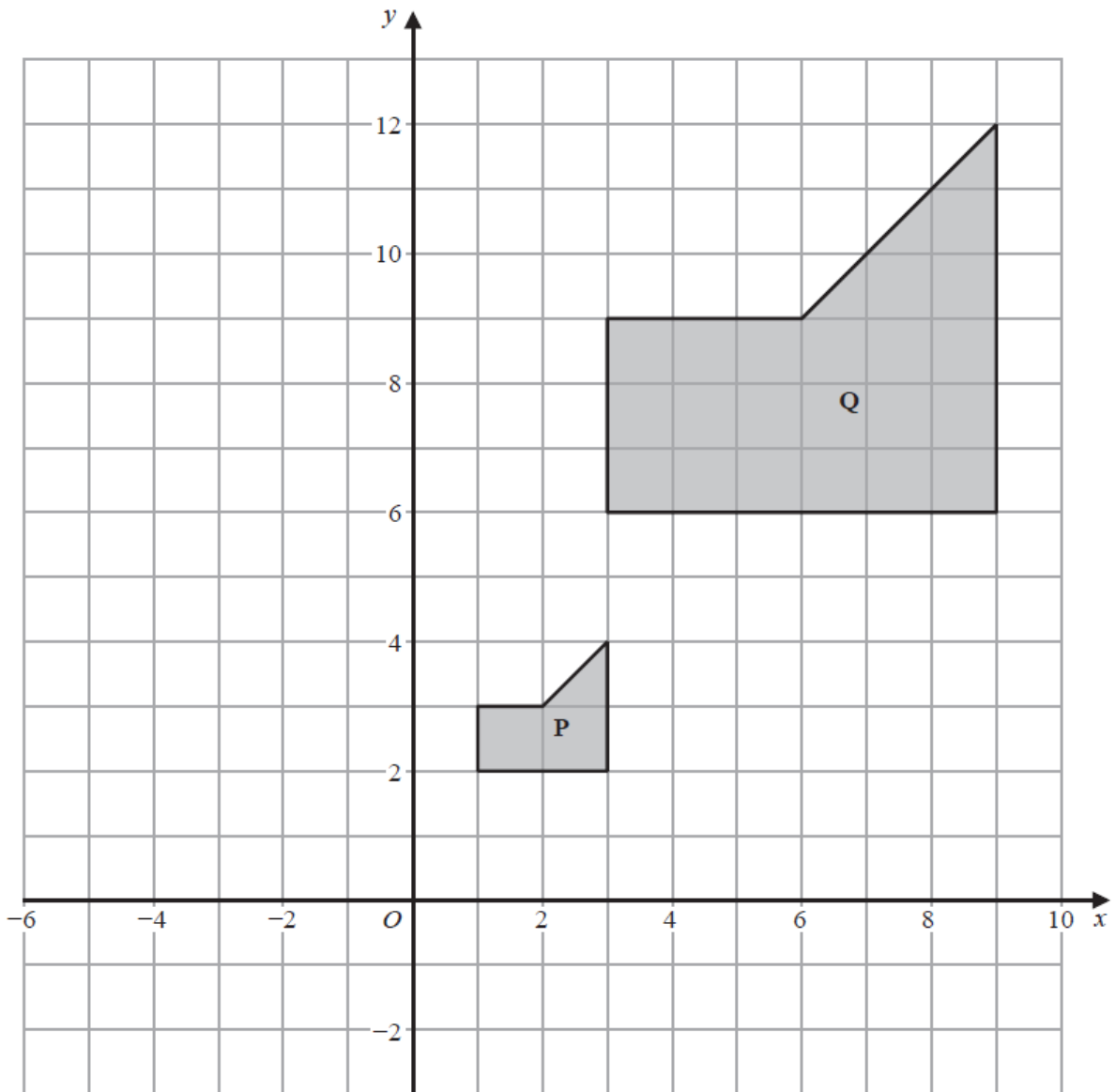
.....
(2)

(Total for Question 14 is 3 marks)

15 On the grid below, draw the graph of $y = 1 - 3x$ for values of x from -2 to 3



(Total for Question 15 is 3 marks)



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

.....

.....

.....

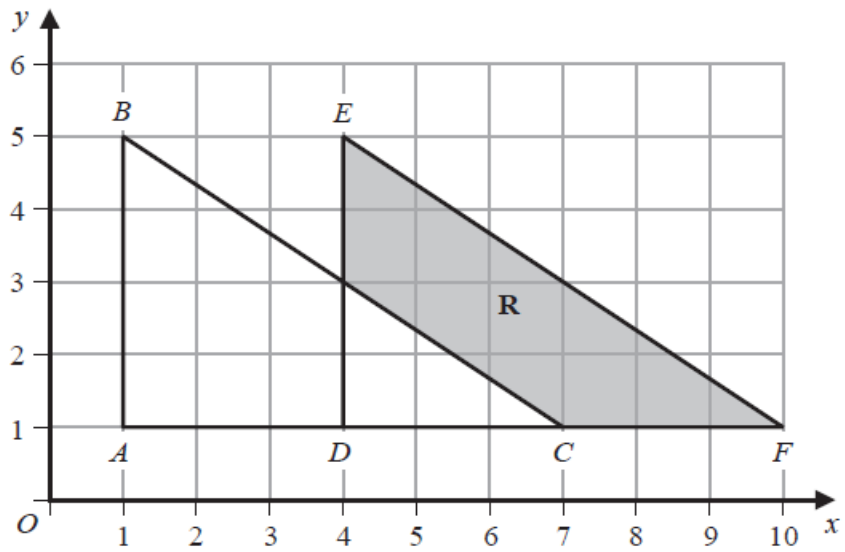
(3)

(b) On the grid, reflect shape **P** in the line with equation $x = 5$
Label your shape **R**.

(2)

(Total for Question 16 is 5 marks)

17 The diagram shows two congruent triangles, ABC and DEF , drawn on a centimetre grid.



Find the area of the region **R**, shown shaded in the diagram.

..... cm^2

(Total for Question 17 is 3 marks)

18 (a) Simplify $(3x^2y)^0$

.....
(1)

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

.....
(2)

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

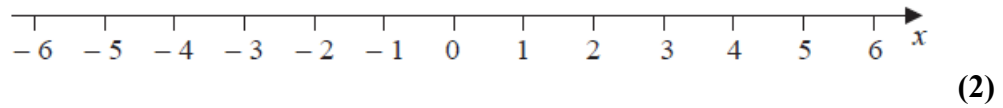
.....
(1)

(Total for Question 18 is 4 marks)

19 (i) Solve the inequalities $-7 \leq 2x - 3 < 5$

.....
(3)

(ii) On the number line, represent the solution set to part (i)



(Total for Question 19 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS