

GCSE Mathematics

Practice Tests: Set 23

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 THIRTY FIVE questions.
Write your answers in the spaces provided.
You must write down all the stages in your working.

1 Solve $5 + x = 12$

$x = \dots\dots\dots$

(Total for Question 1 is 1 mark)

2 Write 0.8 as a percentage.

$\dots\dots\dots\%$

(Total for Question 2 is 1 mark)

3 Expand $5(2 + 3h)$

$\dots\dots\dots$


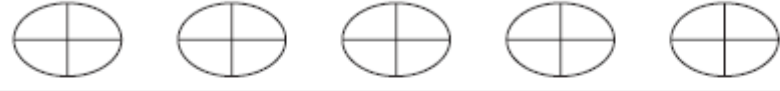



(Total for Question 3 is 1 mark)


4 Solve $\frac{y}{6} = 3$

$y = \dots\dots\dots$

(Total for Question 4 is 1 mark)

- 5 The pictogram shows information about the total weight of potatoes grown last year in each of five countries.

Bangladesh	
USA	
Germany	
Poland	
France	
The Netherlands	

Key:  represents 4 million tonnes of potatoes

The pictogram shows one country where the total weight of potatoes grown last year was 20 million tonnes.

- (a) Which country?

.....
(1)

Last year, the weight of potatoes grown in The Netherlands was 6 million tonnes.

- (b) Show this information on the pictogram.

(1)

- (c) Work out the total weight of potatoes grown in Germany **and** in France last year.

..... million tonnes
(2)

(Total for Question 5 is 4 marks)

6 The table gives information about six plays written by William Shakespeare.

Play	Number of words	Year written
The Taming of the Shrew	21 055	1592
Henry V	26 119	1599
Hamlet	30 557	1602
Macbeth	17 121	1606
Julius Caesar	19 703	1599
King John	20 772	1596

(a) Which of these six plays has the greatest number of words?

.....
(1)

Two of these six plays were written in the same year.

(b) Write down the name of each of these plays.

..... and

(1)

The play Othello has 9329 more words in it than the play Macbeth.

(c) Work out the number of words in the play Othello.

.....
(1)

(d) Write the number 21 055 in words.

.....
(1)

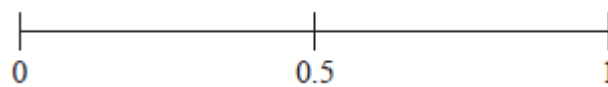
(Total for Question 6 is 4 marks)

- 7 Adam has 8 packets of noodles.
Here is the flavour of noodles in each packet.



Adam takes at random a packet of noodles.

- (a) (i) On the probability scale, mark with a cross (×) the probability that Adam takes a packet of Hot and Spicy noodles.



(1)

- (ii) Circle the word that best describes the likelihood that Adam takes a packet of Vegetarian noodles.

impossible	unlikely	even	likely	certain
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(1)

Belinda asks 20 people to name the type of rice that they each like the best.

Here are her results.

arborio	jasmine	basmati	jasmine	basmati
basmati	arborio	wild	jasmine	jasmine
jasmine	jasmine	arborio	basmati	basmati
wild	basmati	jasmine	wild	arborio

- (b) Complete the frequency table for Belinda's results.

Type of rice	Tally	Frequency
arborio		
basmati		
jasmine		
wild		

(2)

(Total for Question 7 is 4 marks)

8 (a) Simplify $5p \times 9k$

.....
(1)

(b) Simplify $3e + 2f + 8e - 7f$

.....
(2)

(c) Solve $2d + 7 = 16$

$d =$
(2)

(Total for Question 8 is 5 marks)

- 9 Here are four cards.
Each card has a number on it.



These four cards are arranged to make the number 5763

- (a) Arrange the four cards to make the smallest possible number.



(1)

- (b) Arrange the four cards to make the largest possible **even** number.



(1)

- (c) Arrange two of the cards to make a prime number.



(1)

- (d) Arrange two of the cards to make a multiple of 8



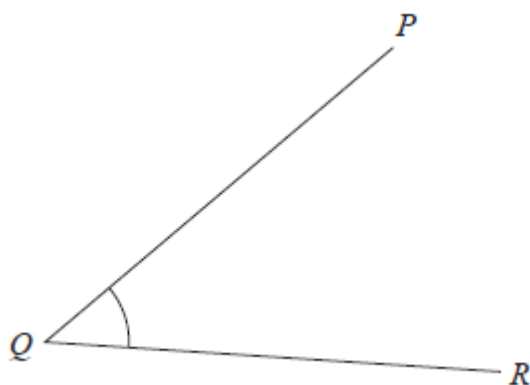
(1)

(Total for Question 9 is 4 marks)

10 (a) In the space below, draw a line of length 6.5 cm

(1)

The diagram shows the straight lines QP and QR



(b) Measure the size of angle PQR

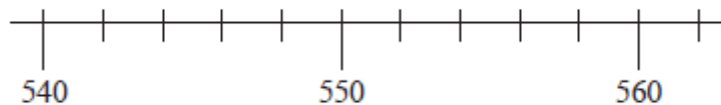
.....°
(1)

(Total for Question 10 is 2 marks)

11 Simplify $c \times c \times c \times c \times c$

.....
(Total for Question 11 is 1 mark)

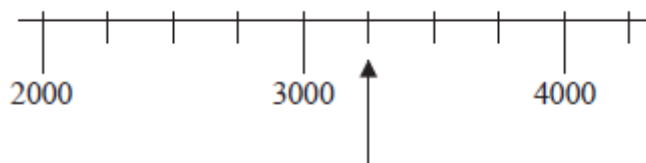
12 Here is a number scale.



(a) On the scale, mark with an arrow, the number 554

(1)

Here is a different number scale.



(b) Write down the number shown marked by the arrow.

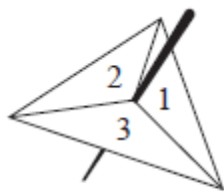
.....
(1)

(Total for Question 12 is 2 marks)

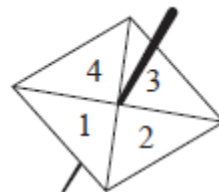
13 Work out the value of $(4 + 3 + 6)^2$

.....
(Total for Question 13 is 1 mark)

14 Avner has two fair spinners.



Spinner A



Spinner B

Spinner A can land on 1, 2 or 3

Spinner B can land on 1, 2, 3 or 4

Avner **multiplies** the number on which spinner A lands by the number on which spinner B lands to find his score.

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

		Spinner A		
		1	2	3
Spinner B	1	1	2	3
	2	2	4	
	3	3		
	4	4		

(2)

Avner spins spinner A once and spinner B once.

- (b) Find the probability that his score is an odd number.

.....
(1)

(Total for Question 14 is 3 marks)

- 15** Roberta goes out for a walk.
She leaves home at 16 35
She arrives back home at 20 15 on the same day.

Work out for how much time Roberta is out for her walk.

..... hours minutes

(Total for Question 15 is 2 marks)

- 16** Write these decimals in order of size.
Start with the smallest decimal.

0.204 0.24 0.04 0.2 0.042

.....
(Total for Question 16 is 1 mark)

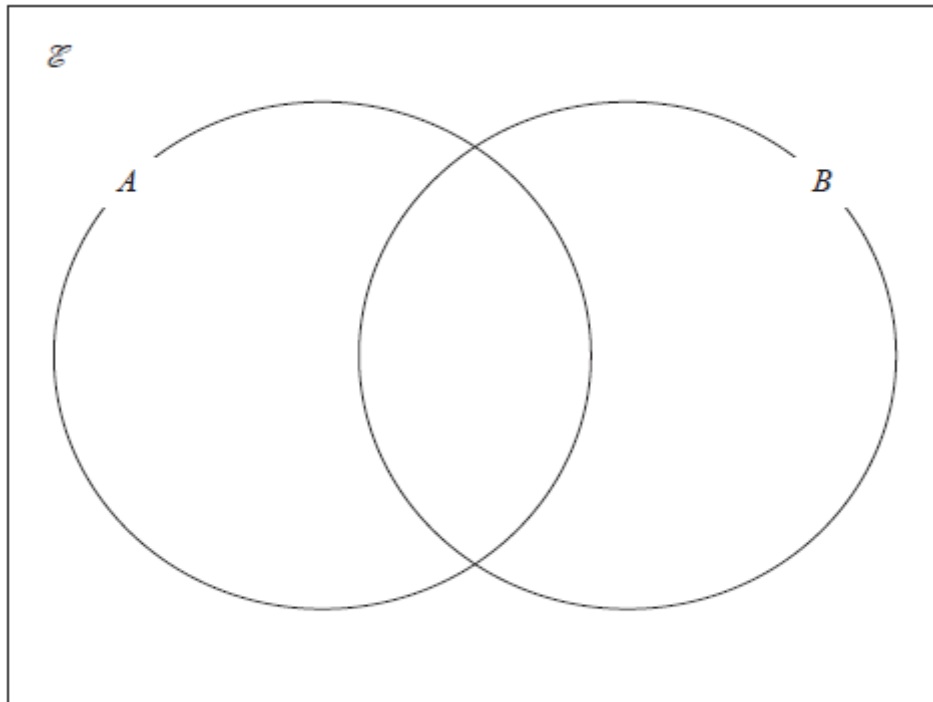
17 $\mathcal{E} = \{11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$

$A = \{\text{even numbers}\}$

$A \cap B = \{12, 16, 20\}$

$(A \cup B)' = \{17, 19\}$

Complete the Venn diagram for the sets \mathcal{E} , A and B



(Total for Question 17 is 3 marks)

18 Show that $\frac{7}{8} - \frac{5}{12} = \frac{11}{24}$

(Total for Question 18 is 2 marks)

19 $p = t - ac$

$$\begin{aligned}t &= 18 \\ a &= -3 \\ c &= 5\end{aligned}$$

Work out the value of p

$p = \dots\dots\dots$

(Total for Question 19 is 2 marks)

20 Write 25.786 21 correct to 2 decimal places.

.....
(Total for Question 20 is 1 mark)

21 $64 = 4^n$

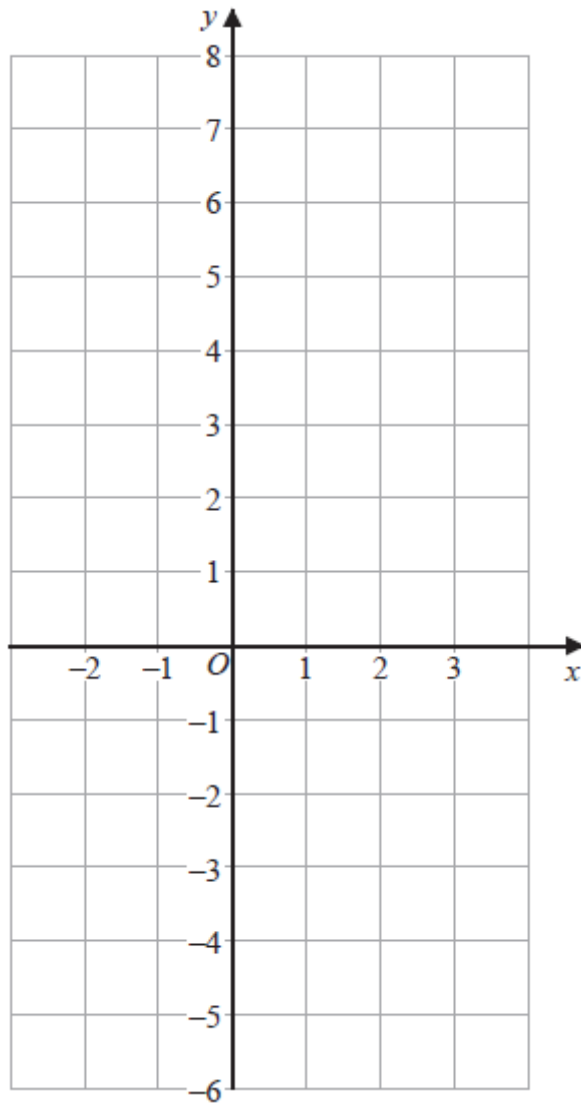
Write down the value of n

$n =$
(Total for Question 21 is 1 mark)

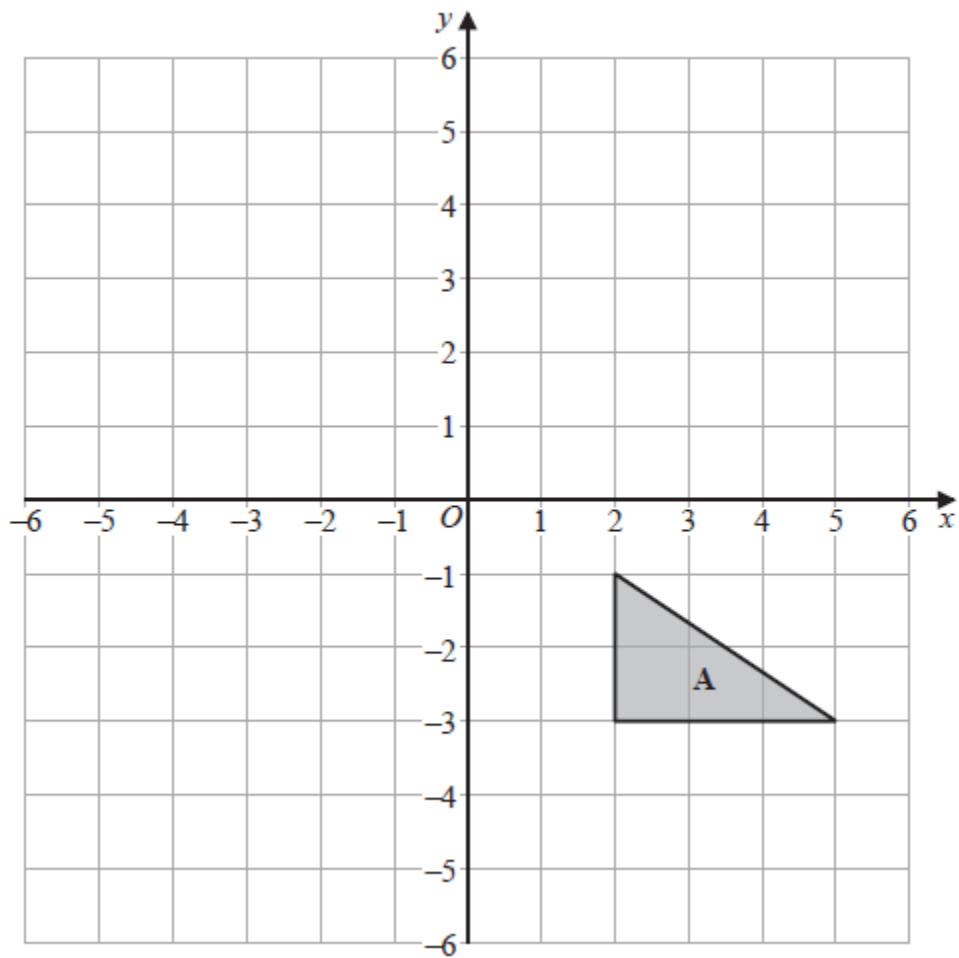
22 Factorise $g^2 + 7g$

.....
(Total for Question 22 is 1 mark)

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

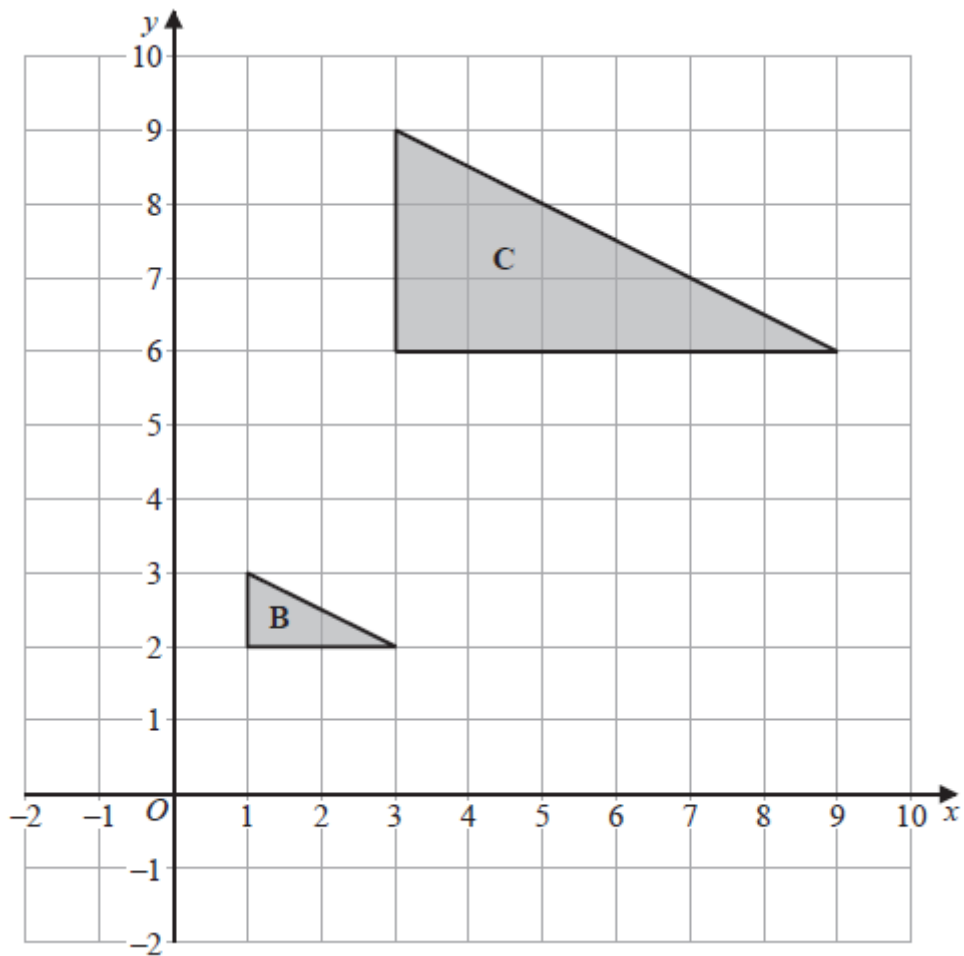


(Total for Question 23 is 3 marks)



(a) On the grid, rotate triangle **A** 90° anticlockwise about centre O

(2)



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

.....

.....

.....

(2)

(Total for Question 24 is 4 marks)

25 Show that $3\frac{5}{7} \div 1\frac{5}{8} = 2\frac{2}{7}$

(Total for Question 25 is 3 marks)

26 Write down the value of $(m + 2)^0$ where m is a positive integer.

.....
(Total for Question 26 is 1 mark)

- 27** Solve $3(2 - 4x) = 5 - 8x$
Show clear algebraic working.

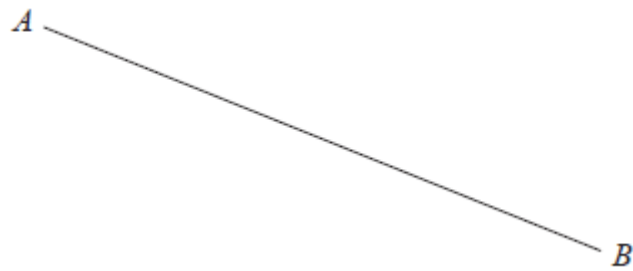
$x = \dots\dots\dots$

(Total for Question 27 is 3 marks)

- 28** Make x the subject of the formula $d = 3x + 10$

$\dots\dots\dots$
(Total for Question 28 is 2 marks)

- 29** Use ruler and compasses only to construct the perpendicular bisector of line AB
You must show all your construction lines.



(Total for Question 29 is 2 marks)

30 Solve the simultaneous equations

$$5x + 4y = -2$$

$$2x - y = 4.4$$

Show clear algebraic working.

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

(Total for Question 30 is 3 marks)

31 Simplify $(3a^2b^4)^3$

$$\dots\dots\dots$$

(Total for Question 31 is 2 marks)

32 Factorise fully $14x^2y^4 + 21x^3y^2$

$$\dots\dots\dots$$

(Total for Question 32 is 2 marks)

33 The diagram shows an isosceles triangle, with base length 24 cm.

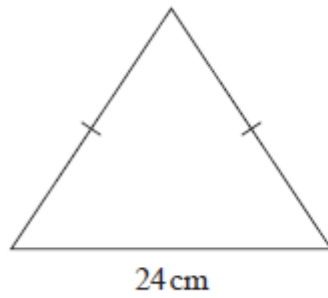


Diagram NOT
accurately drawn

The perimeter of the triangle is 54 cm.

Work out the area of the triangle.

..... cm²

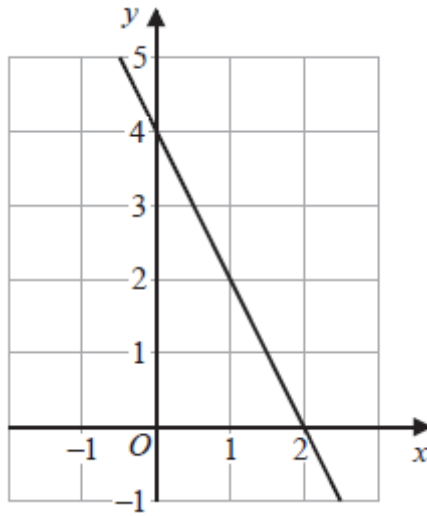
(Total for Question 33 is 5 marks)

34 Write down the value of the 3 in the number 4.7634

.....

(Total for Question 34 is 1 mark)

35 The diagram shows a straight line drawn on a grid.



Write down an equation of the line.

.....
(Total for Question 35 is 2 marks)

TOTAL MARK FOR PAPER IS 80

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