GCSE Mathematics Practice Tests: Set 19

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 TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Solve $5x = 30$

$x =$ .....

(Total for Question 1 is 1 mark)

---

2 Solve $y - 7 = 12$

$y =$ .....

(Total for Question 2 is 1 mark)

---

3 Here is a rectangle made from squares.

Shade 0.7 of the rectangle.

(Total for Question 3 is 1 mark)

---

4 (*a*) Simplify $a^7 \times a^4$

.....

(Total for Question 4 is 1 mark)

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5 Simplify $h + h + h + h + h$

.....

(Total for Question 5 is 1 mark)

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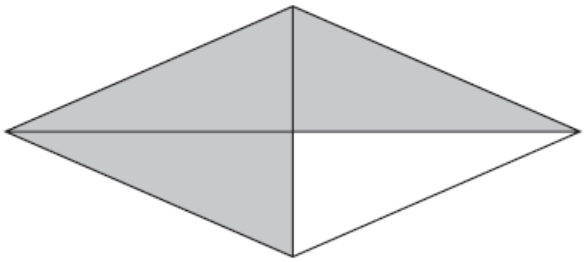
6 Here is a rhombus.



(*a*) What fraction of the rhombus is shaded?

.....

(1)

(*b*) Write 0.9 as a fraction.

.....

(1)

(Total for Question 6 is 2 marks)

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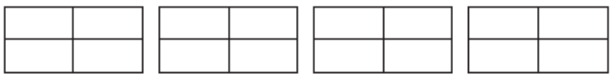
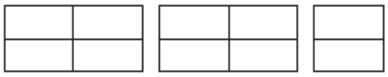
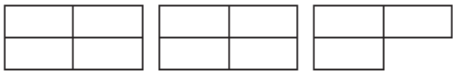
7 The pictogram shows information about the number of text messages Colin sent on each of four days last week.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:

 represents 8 text messages

(*a*) How many text messages did Colin send on Tuesday?

.....

(1)

(*b*) Work out the total number of text messages that Colin sent on the four days from Monday to Thursday last week.

.....

(2)

On Friday, Colin sent 26 text messages.

(*c*) Show this information on the pictogram.

(1)

(Total for Question 7 is 4 marks)

8 The table below shows the maximum recorded temperature and the minimum recorded temperature on one day in each of four countries.

Country	**Maximum recorded temperature**	**Minimum recorded temperature**
Morocco	19 °C	11 °C
Qatar	21 °C	18 °C
Finland	−19 °C	−28 °C
Canada	8 °C	−40 °C

(*a*) Which country has the highest maximum recorded temperature?

.....

(1)

(*b*) Work out the difference between the maximum recorded temperature in Finland and the minimum recorded temperature in Finland.

..... °C

(1)

On the same day, the minimum recorded temperature in Japan is 15 °C lower than the minimum recorded temperature in Morocco.

(*c*) Work out the minimum recorded temperature in Japan.

..... °C

(1)

(Total for Question 8 is 3 marks)

9 Simplify $5a + 7f - 2a + 4f$

.....

(Total for Question 9 is 2 marks)

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10 There are 30 dogs staying in some boarding kennels.
12 of the dogs are brown.

What fraction of the dogs in the boarding kennels are **not** brown?
Give your fraction in its simplest form.

.....

(Total for Question 10 is 2 marks)

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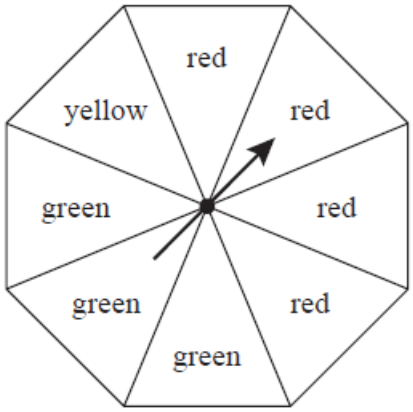
11 The diagram shows a fair 8-sided spinner.



Hollie is going to spin the spinner once.

impossible	unlikely	evens	likely	certain

(*a*) Write down the word from the box above that best describes the likelihood that the spinner will land on

(i) yellow

.....

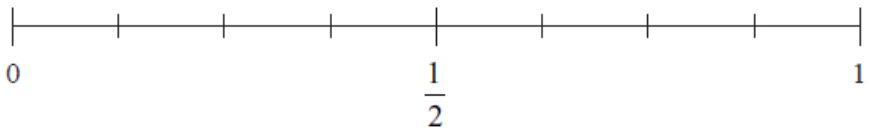
(1)

(ii) red.

.....

(1)

(*b*) On the probability scale below, mark with a cross (×) the probability that the spinner will land on blue.



(1)

(Total for Question 11 is 3 marks)

12 Here is a list of numbers.

3 8 9 14 23 28 30

(*a*) From the numbers in the list, write down

(i) a cube number

.....

(1)

(ii) a factor of 70

.....

(1)

(iii) a multiple of 6

.....

(1)

(iv) a prime number.

.....

(1)

(Total for Question 12 is 4 marks)

---

13 In a library there are two trolleys of books.

On trolley 1 the subjects of the books are Buildings (B), Rivers (R) and Space (S).
On trolley 2 the subjects of the books are Buildings (B), History (H) and Animals (A).

Tomos takes one book from trolley 1 and one book from trolley 2

Write down all the possible combinations of subjects that Tomos can take.

.....

.....

(Total for Question 13 is 2 marks)

---

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

2.803 2.008 2.081 2.83 2.8

.....

(Total for Question 14 is 2 marks)

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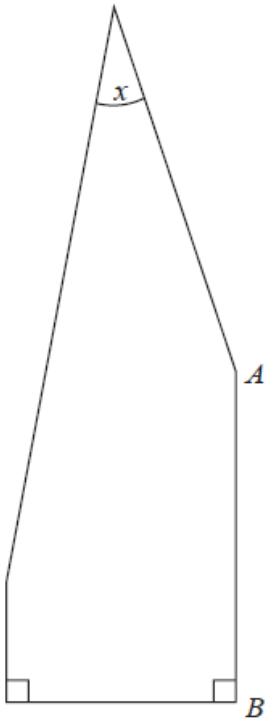
15 The diagram shows a 5-sided polygon.



(*a*) Measure the length of the side *AB*
Give the units of your answer.

.....

(2)

(*b*) Measure the size of the angle marked *x*

.....°

(1)

(*c*) On the diagram, mark with arrows (>>) a pair of parallel sides.

(1)

(*d*) Write down the mathematical name of a 5-sided polygon.

.....

(1)

(Total for Question 15 is 5 marks)

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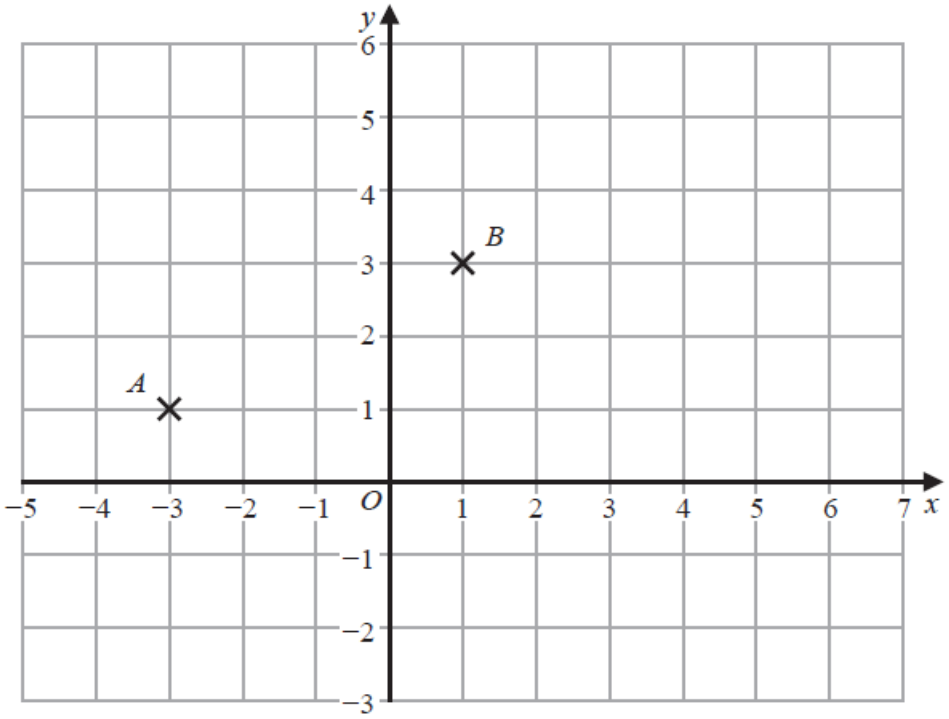
16 The diagram shows points A and B marked on a grid of squares.



(a) On the grid, draw the line with equation $y = -2$

(1)

M is the midpoint of AB

(b) Find the coordinates of M

(..... , ...)

(2)

D is the point with coordinates $(5, d)$ where $d > 0$
The triangle ABD is an isosceles triangle.

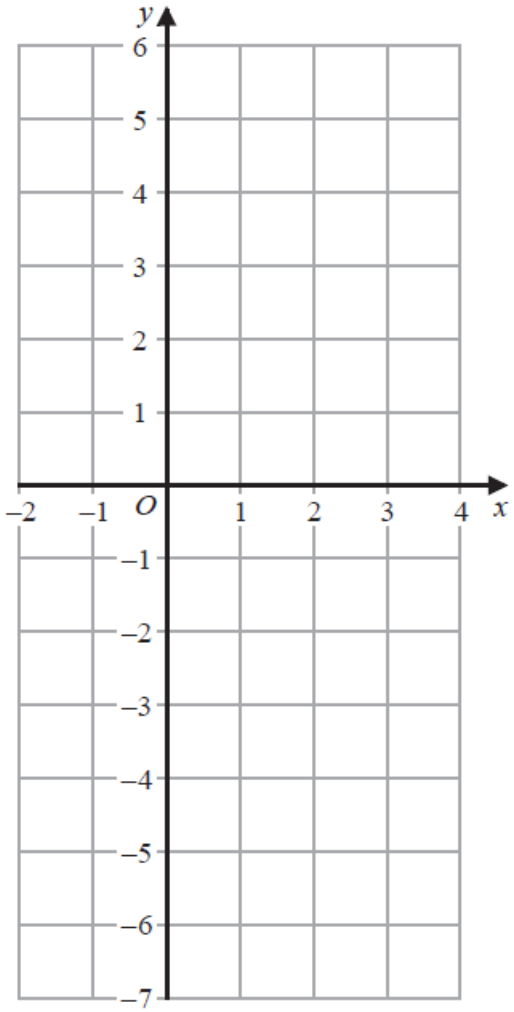
(c) Find the value of d

$d =$ .....

(1)

(Total for Question 16 is 4 marks)

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



(Total for Question 17 is 3 marks)

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18 Simplify $w^{15} \div w^3$

.....

(Total for Question 18 is 1 mark)

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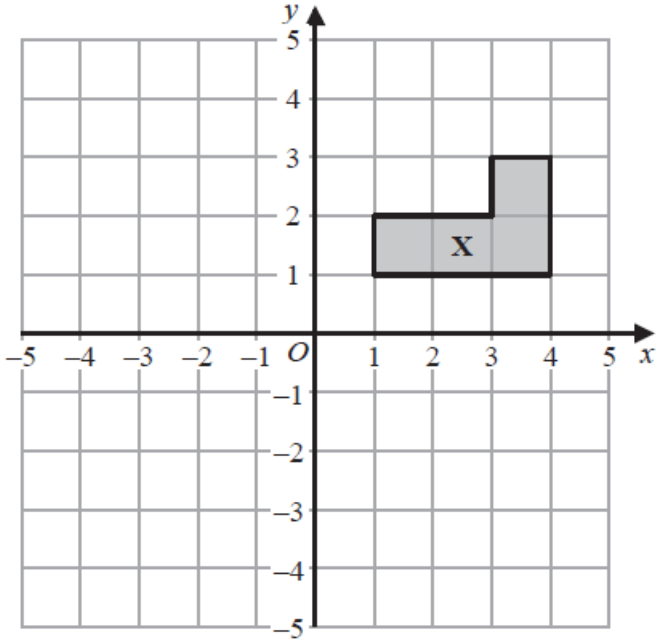
19 Show that $\frac{4}{9} + \frac{1}{6} = \frac{11}{18}$

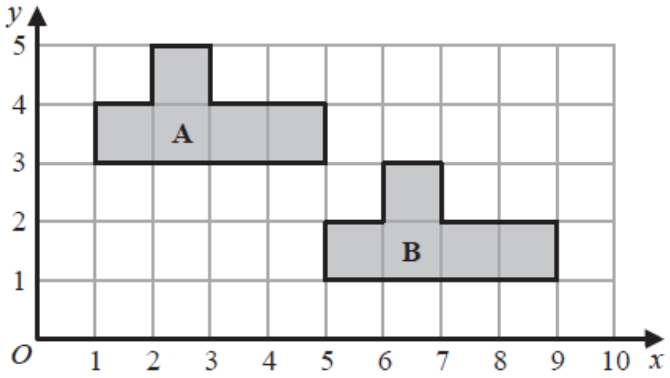
(Total for Question 19 is 2 marks)

20



(*a*) On the grid above, rotate shape **X** 90° clockwise about *O*

(2)



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

.....

.....

(2)

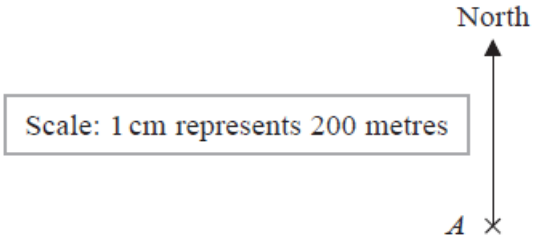
(Total for Question 20 is 4 marks)

21 Expand and simplify $x(2x - 3) + 7(2x + 1) - 5$

.....

(Total for Question 21 is 3 marks)

22 The scale diagram shows the position on a map of a house, A



House C is on a bearing of 110° from A
The distance from A to C is 700 m

(a) Mark the position of C on the diagram with a cross (×)
Label your cross C

(3)

(b) Write the scale of the map in the form 1 : n

1 : .....

(1)

(Total for Question 22 is 4 marks)

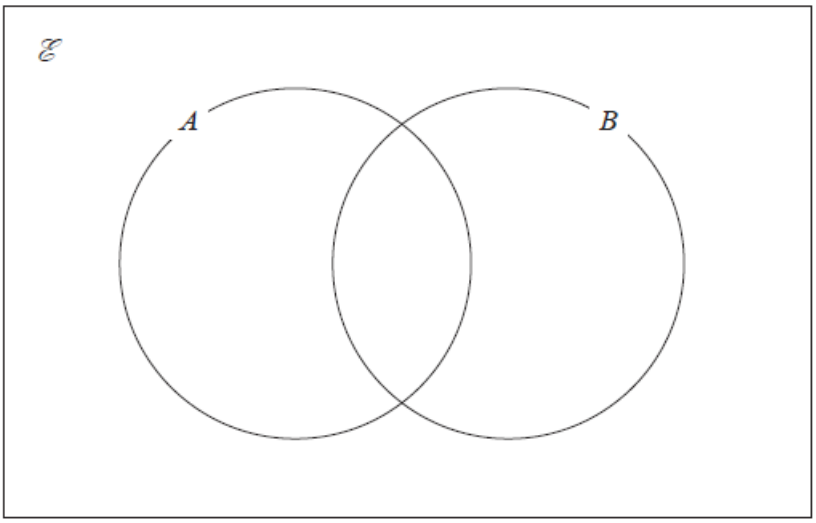
23 $\mathscr{E} = \{4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$

$A \cap B = \{5, 10, 15\}$

$B' = \{7, 8, 9, 11, 12, 13, 14\}$

$A' = \{4, 6, 7, 8, 14\}$

Complete the Venn diagram for this information.



(Total for Question 23 is 3 marks)

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24 Alisa, Jena and Mikael each pick cucumbers.

Alisa picks C cucumbers.
Jena picks 5 fewer cucumbers than Alisa.
Mikael picks twice as many cucumbers as Alisa.

The total number of cucumbers picked by Alisa, Jena and Mikael is T

Find a formula for T in terms of C
Give your formula in its simplest form.

.....

(Total for Question 24 is 3 marks)

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25 Show that $6\frac{3}{4} \div 2\frac{4}{7} = 2\frac{5}{8}$

(Total for Question 25 is 3 marks)

---

26 Expand and simplify $(y + 4)(2 - y)$

.....

(Total for Question 26 is 2 marks)

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27 Solve the inequality $5x - 7 \leq 2$

.....

(Total for Question 27 is 2 marks)

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28 By writing each value correct to one significant figure, work out an estimate for the value of

$$\frac{8.23 \times 181}{0.482}$$

Show your working clearly.

.....

(Total for Question 28 is 3 marks)

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29 Factorise fully $15b^5c - 35b^3c^9$

.....

(Total for Question 29 is 2 marks)

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30 (*a*) Factorise $y^2 - 2y - 35$

.....

(2)

(*b*) Hence solve $y^2 - 2y - 35 = 0$

.....

(1)

(Total for Question 30 is 3 marks)

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31 Simplify $(8x^5y^3)^2$

.....

(Total for Question 31 is 2 marks)

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32 Make t the subject of $c = t^3 - 8v$

.....

(Total for Question 32 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS