GCSE Mathematics Practice Tests: Set 20

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 THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1   Write 23% as a decimal.

....

(Total for Question 1 is 1 mark)

2   Simplify $8e \times 5f$

....

(Total for Question 2 is 1 mark)

3   Write 0.7 as a fraction.

....

(Total for Question 3 is 1 mark)

4   Simplify $x^4 \times x^5$

....

(Total for Question 4 is 1 mark)

5 Here is a list of four words that can be used to describe numbers.

| cube | square | prime | negative |

Use the word from the list to complete the sentence below correctly.

25 is a .... number

(Total for Question 5 is 1 mark)

6 Write $\dfrac{11}{4}$ as a mixed number in its simplest form.

....

(Total for Question 6 is 1 mark)

7 40 people were asked to name their favourite type of holiday.

The pictogram gives information about the number of these people who said each of City Break or Beach or Walking.

represents 4 people
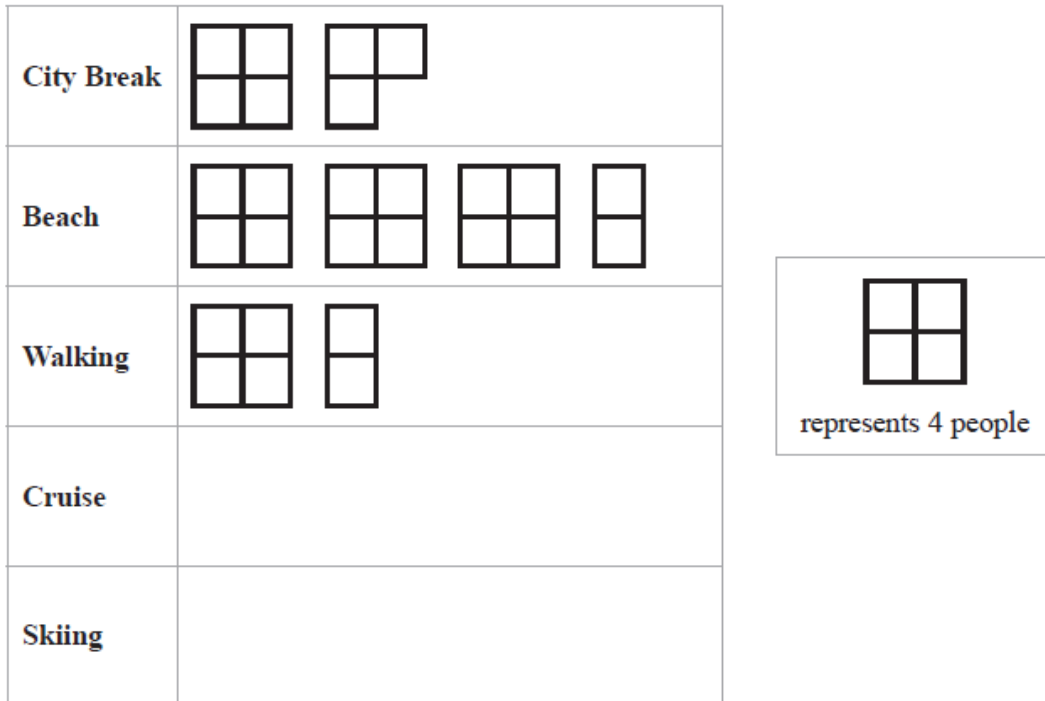
(a) How many of these people said Beach?

....

(1)

4 people said Cruise.
9 people said Skiing.

(b) Show this information on the pictogram.

(2)

One person from the 40 people asked is selected at random.

(c) Find the probability that this person said City Break.

....

(2)

(Total for Question 7 is 5 marks)

8

| 10 | 15 | 23 | 25 | 27 | 28 | 33 | 35 |

From the numbers in the box, write down

(i) an even number

....

(ii) a multiple of 9

....

(iii) a prime number

....

(Total for Question 8 is 3 marks)

9 Here are four cards.
Each card has a number on it.
The four cards are arranged to make the number 7358

| 7 | 3 | 5 | 8 |

(i) Show how the four cards can be arranged to make the smallest number using all four cards.

| | | | |

(ii) Show how the four cards can be arranged to make a correct calculation below.

☐ ☐ + ☐ ☐ = 95

(Total for Question 9 is 2 marks)

10 Write 30 as a fraction of 48
Give your fraction in its simplest form.

....

(Total for Question 10 is 2 marks)

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11 Simplify $3c + 5d - c + 2d$

....

(Total for Question 11 is 2 marks)

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12 (*a*) Solve $5c = 15$

$c =$ ....

(1)

(*b*) Expand $x(8 - x)$

....

(1)

(Total for Question 12 is 2 marks)

---

13 Solve $5r - 3 = 8$

$r =$ ....

(Total for Question 13 is 2 marks)

---

14 Here are the first 4 terms of a number sequence.

$$7 \qquad 12 \qquad 17 \qquad 22$$

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

....
(1)

(ii) Explain how you worked out your answer.

……………………………………………………..
(1)

(*b*) Is 256 a number in the sequence?

Tick one of the boxes below and give a reason for your answer.

Yes ☐   No ☐

Give a reason for your answer.

……………………………………………………..

……………………………………………………..
(1)

(Total for Question 14 is 3 marks)

15 At school each week, Gabriella has to play a sport on Monday and a sport on Thursday.

The table shows the sports from which she can choose on Monday and the sports from which she can choose on Thursday.

Monday	Thursday
Tennis (T)	Volleyball (V)
Netball (N)	Badminton (B)
Hockey (H)	Tennis (T)

Write down all the possible combinations of these sports that Gabriella can play in one week.

....

....

....

(Total for Question 15 is 2 marks)

---

16 Here are the salaries, in thousands of dollars, of seven people.

21   28   29   32   34   34   39

(*a*) Find the mode of the salaries.

.... thousand dollars

(1)

(*b*) Find the range of the salaries.

.... thousand dollars

(1)

(Total for Question 16 is 2 marks)

---

17 (*a*) Change 6 metres into centimetres.

.... centimetres

(1)

(*b*) Change 4500 grams into kilograms.

.... kilograms

(1)

(Total for Question 17 is 2 marks)

18 (*a*) Write 5×10^4 as an ordinary number.

....

(1)

(*b*) Write 0.000 06 in standard form.

....

(1)

(Total for Question 18 is 2 marks)

19 The diagram shows three points, *A*, *B* and *C*, on a grid.
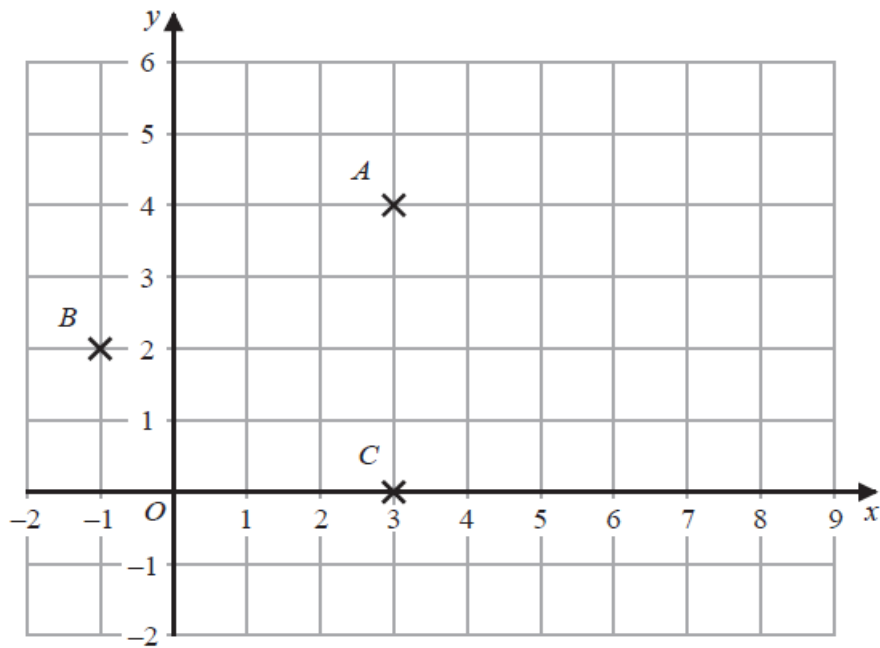
(*a*) Write down the coordinates of

   (i) point *A*

   (.............................. , ...)

   (ii) point *B*

   (.............................. , ...)

(2)

D is the point such that *ABCD* is a rhombus.

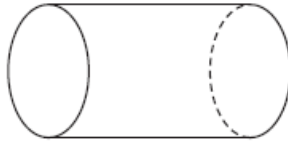(*b*) On the grid, mark with a cross (×) the point *D*
   Label this point *D*

(1)

(*c*) Find the coordinates of the midpoint of *AB*

   (.............................. , ...)

(2)

(Total for Question 19 is 5 marks)

20 (*a*) Write down the mathematical name of this 3-D shape.

....

(1)

Here is a solid prism.
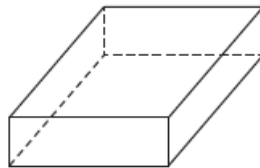
(*b*) How many edges does the prism have?

....

(1)

(Total for Question 20 is 2 marks)

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

0.47   0.4   0.74   0.477   0.407

....

(Total for Question 21 is 1 mark)

22 (*a*) Show that $\dfrac{3}{8} \div \dfrac{27}{32} = \dfrac{4}{9}$

(2)
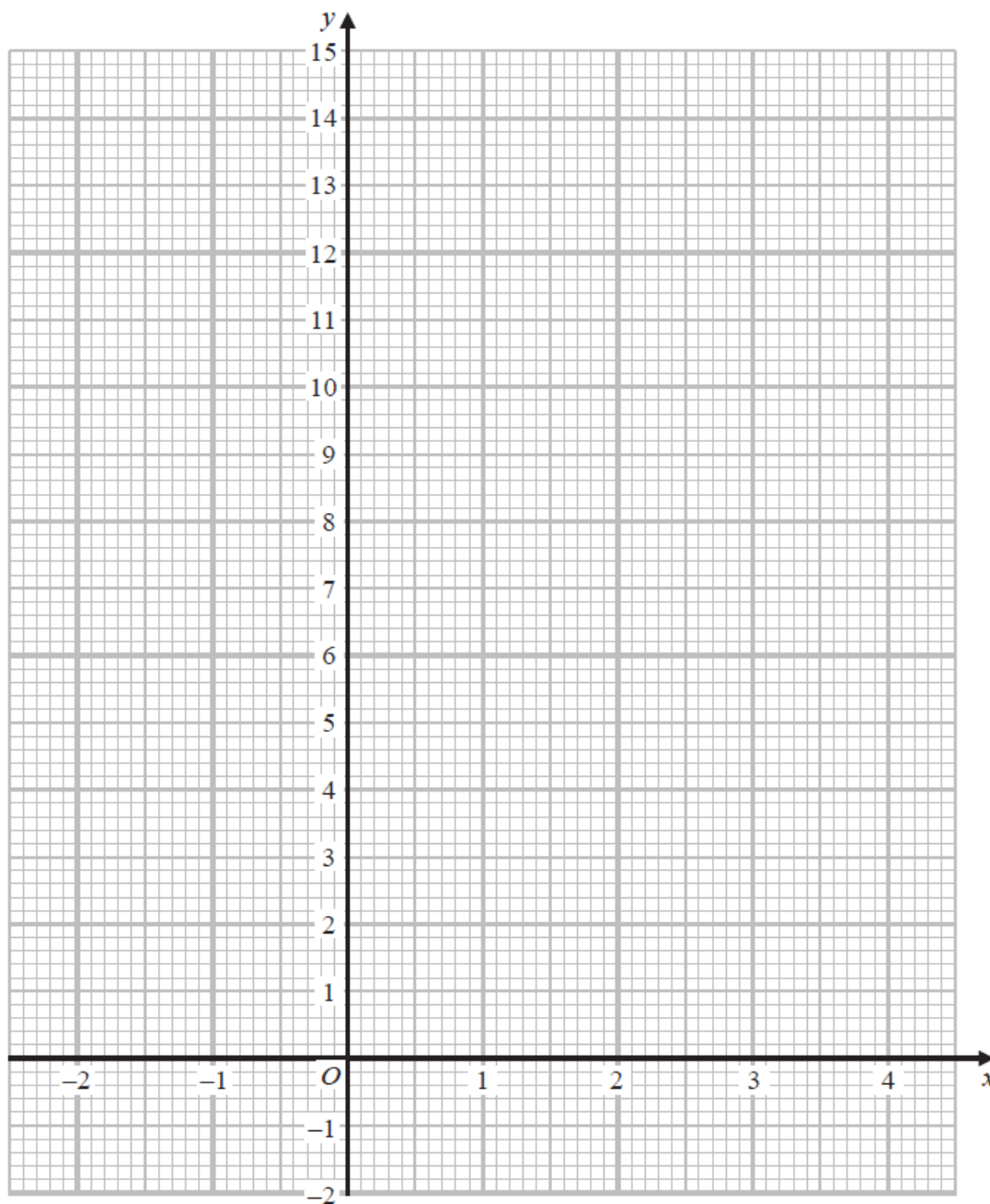
(*b*) Show that $\dfrac{5}{6} - \dfrac{3}{8} = \dfrac{11}{24}$

(2)

(Total for Question 22 is 4 marks)

23 (*a*) Complete the table of values for $y = x^2 - 4x + 3$

x	-2	-1	0	1	2	3	4
y		8	3			0	

(2)

(*b*) On the grid, draw the graph of $y = x^2 - 4x + 3$ for values of x from -2 to 4

(2)

(Total for Question 23 is 4 marks)
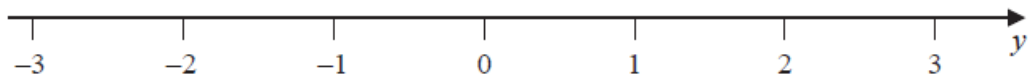
24 Make g the subject of $k = 2g + t$

....

(Total for Question 24 is 2 marks)

25 n is an integer.

(*a*) Write down all the values of n such that $-2 \leq n < 3$

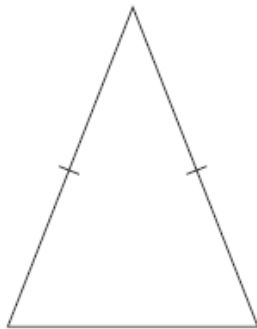...

(2)

(*b*) On the number line, represent the inequality $y \leq 1$

(1)

(Total for Question 25 is 3 marks)

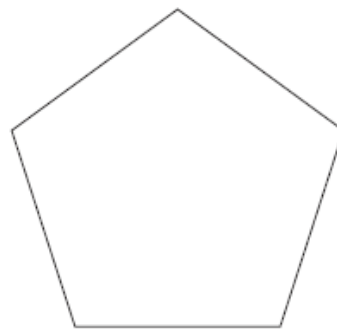**26** Here are three shapes.

Shape **A** is a triangle.

(*a*) Write down the mathematical name for this type of triangle.

....
(1)

Shape **B** is a rectangle.

(*b*) On shape **B**, draw its lines of symmetry.

(1)

Shape **C** is a regular polygon.

(*c*) Write down the order of rotational symmetry of shape **C**.

....
(1)

(Total for Question 26 is 3 marks)

27 Factorise $6x - 15$

....
(Total for Question 27 is 1 mark)

28   Simplify $(4y^2)^3$

....

(Total for Question 28 is 2 marks)

29
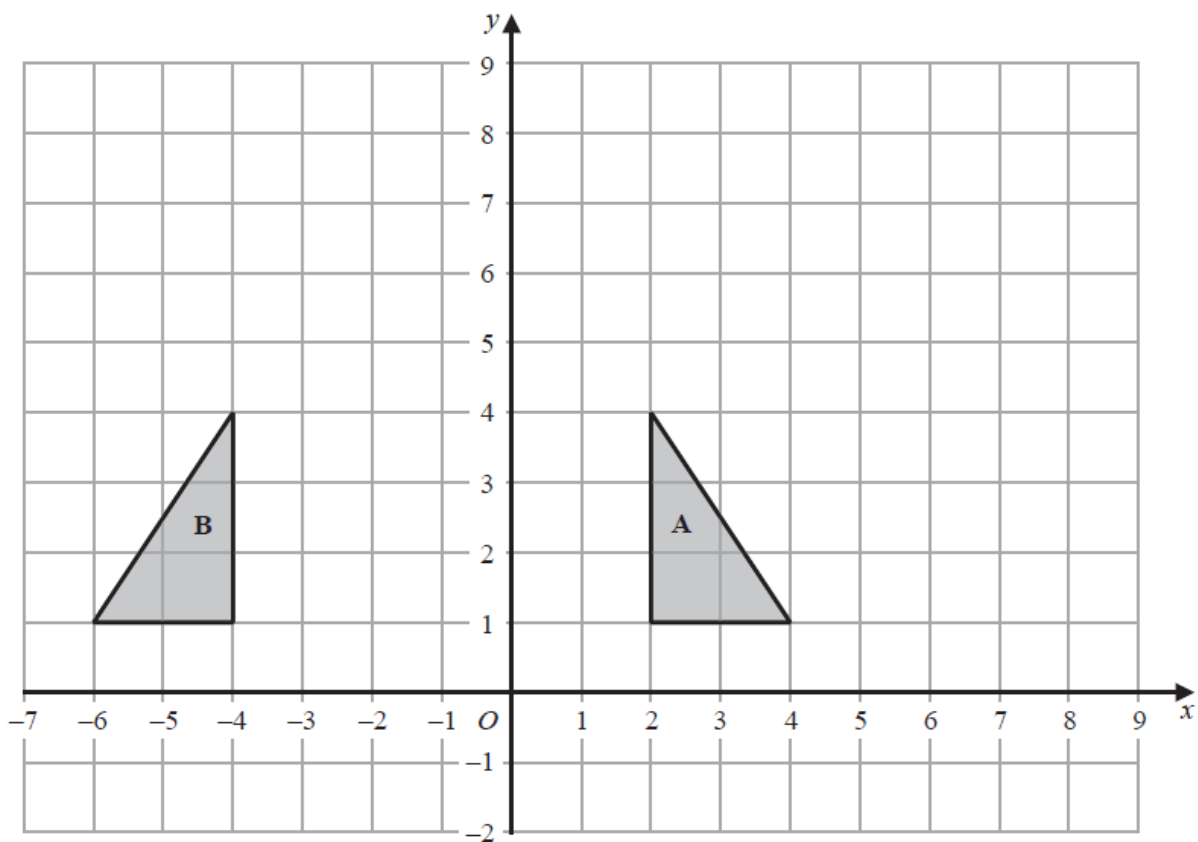
(*a*) Describe fully the single transformation that maps triangle **A** onto triangle **B**

....

....

(2)

(*b*) On the grid above, enlarge triangle **A** with scale factor 2 and centre *O*
      Label your triangle **C**

(2)

(Total for Question 29 is 4 marks)

30 (*a*) Solve $4y + 5 > 12$

....
(2)

(*b*) Solve $6x - 5 = \dfrac{4x - 7}{2}$

Show clear algebraic working.

$x =$ ....
(3)

(Total for Question 30 is 5 marks)

31 Factorise $n^2 - 7n + 12$

....

(Total for Question 31 is 2 marks)

32 There are 200 bolts in each box of bolts.
Samira buys c boxes of bolts.

Samira uses the bolts she bought to fill packets of bolts.
There are 50 bolts in each packet of bolts.
Samira sells d packets of bolts.

The total number of bolts Samira has left is T

Write down a formula for T in terms of c and d

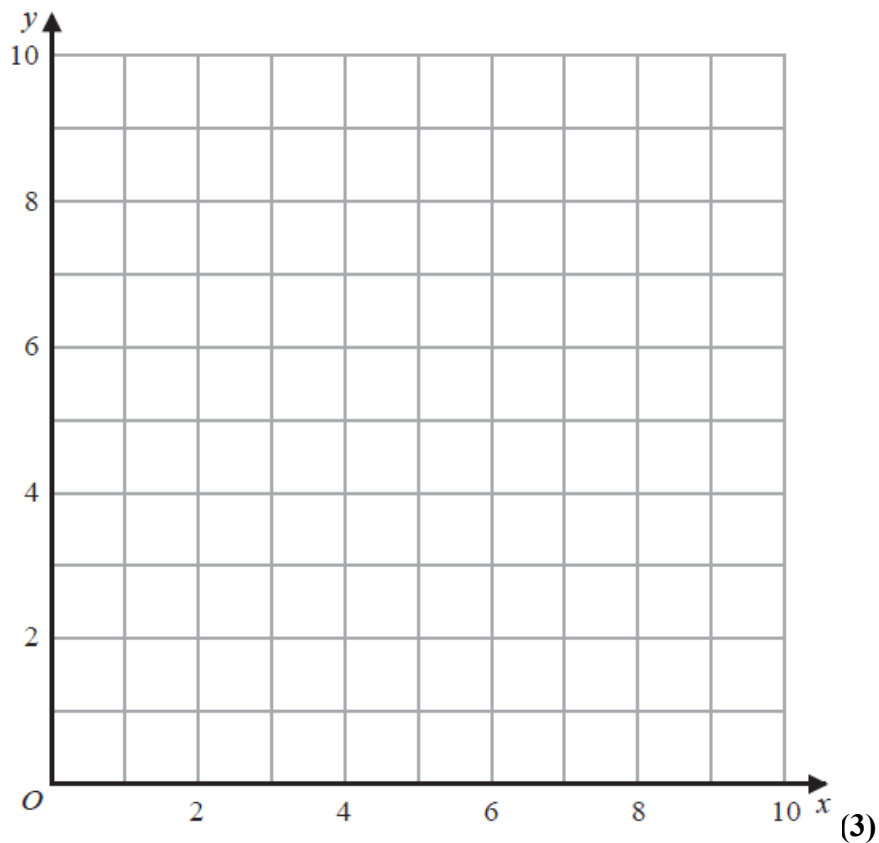...

(Total for Question 32 is 3 marks)

33 (*a*) Write down an equation of the straight line with gradient –3 and which passes through the point with coordinates (0, 5)

....
(2)

(*b*) Show, by shading on the grid, the region defined by **all three** of the inequalities

$$x \leq 6 \qquad y \geq 2 \qquad y \leq x + 1$$

Label the region **R**

(3)

(Total for Question 33 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS

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