

GCSE Mathematics

Practice Tests: Set 17

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

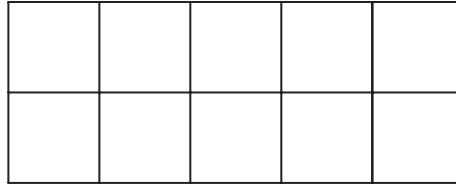
- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Here is a shape made of squares.



Shade $\frac{3}{5}$ of the shape.

(Total for Question 1 is 1 mark)

2 Simplify $6d + 2e + d - 5e$

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

3 Write $\frac{36}{120}$ as a fraction in its simplest form.

.....
(Total for Question 3 is 1 mark)





4 Simplify $a \times a \times a \times a$

.....
(Total for Question 4 is 1 mark)

5 Simplify $4b \times 5c$

.....
(Total for Question 5 is 1 mark)

- 6 The pictogram shows information about the number of emails Sophie received on each of four days.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:



represents: 4 emails

- (a) On which of Monday, Tuesday, Wednesday or Thursday did Sophie receive the least number of emails?

.....
(1)

- (b) Find the ratio of the number of emails Sophie received on Monday to the number of emails Sophie received on Tuesday.
Give your ratio in its simplest form.

.....
(2)

On Friday, Sophie received 14 emails.

- (c) Show this information on the pictogram.

(1)

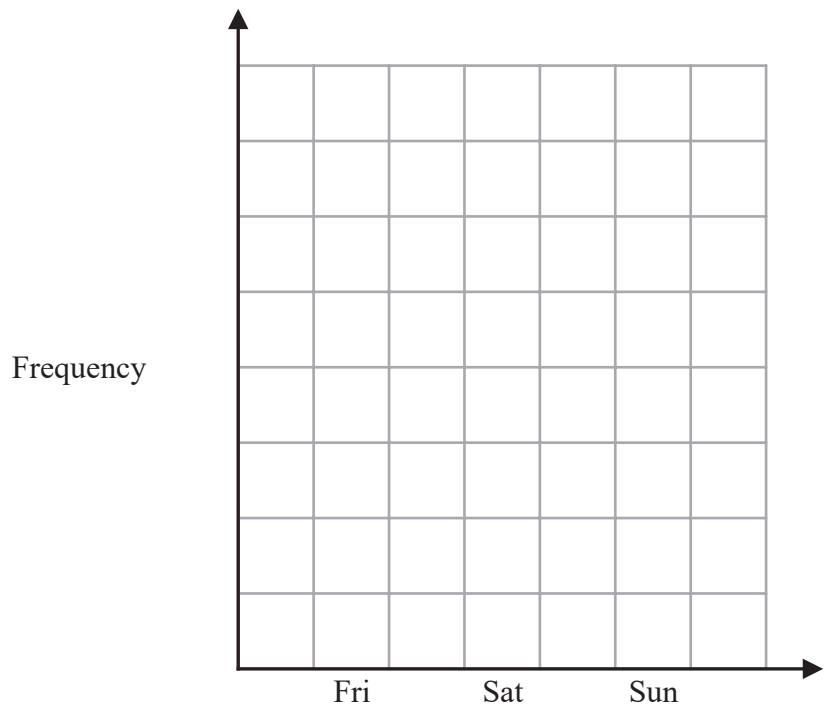
On Friday, 6 of the 14 emails Sophie received were from Kamil.

- (d) Write 6 as a fraction of 14
Write your fraction in its simplest form.

.....
(2)

On Friday, Sophie received 14 emails, on Saturday she received 11 emails and on Sunday she received 6 emails.

- (e) Draw a bar chart to show the number of emails Sophie received on each of Friday, Saturday and Sunday.
Complete the frequency axis.



(2)

(Total for Question 6 is 8 marks)

7 Mikhal has 1200 grams of cake mixture.

He is going to make 3 cakes, cake *A*, cake *B* and cake *C*.

$\frac{4}{15}$ of the weight of the cake mixture will be used to make cake *A*.

The rest of the cake mixture will be used to make cake *B* and cake *C*.

The weight of the cake mixture used to make cake *B* and the weight of the cake mixture used to make cake *C* will be in the ratio 3 : 8

Work out the weight of the cake mixture used to make each of cake *A*, cake *B* and cake *C*.

Cake *A* grams

Cake *B* grams

Cake *C* grams

(Total for Question 7 is 4 marks)

8 Caroline has a bag containing 10 counters.

In the bag there are

- 7 red counters
- 2 blue counters
- 1 green counter

Caroline is going to choose at random a counter from the bag.

impossible	unlikely	evens	likely	certain
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(a) Write down the word from the box that best describes the likelihood that Caroline will take

(i) a red counter,

.....

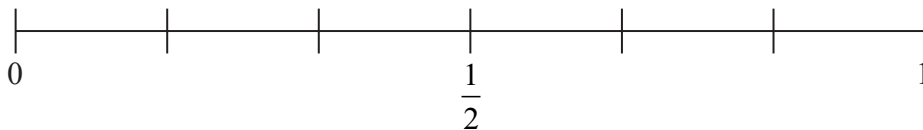
(ii) a yellow counter.

.....

(2)

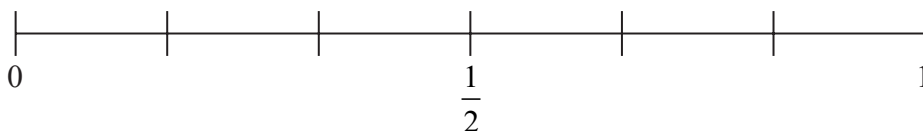
Jamil is going to roll a fair six-sided dice.

(b) On the probability scale, mark with a cross (X) the probability that the dice will land on an odd number.



(1)

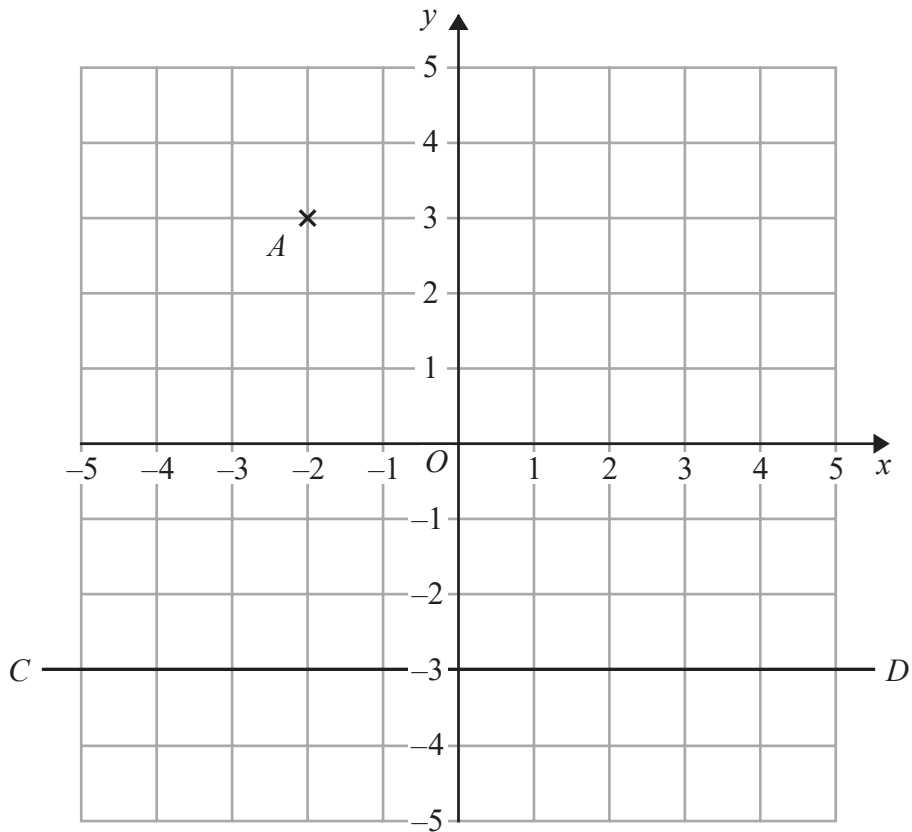
(c) On the probability scale, mark with a cross (X) the probability that the dice will land on 2



(1)

(Total for Question 8 is 4 marks)

9 The diagram shows the point A and the line CD on a grid.



(a) Write down the coordinates of point A .

(.....,)
(1)

The point B has coordinates $(4, -2)$

(b) On the grid, mark with a cross (\times) the point B .
Label the point B .

(1)

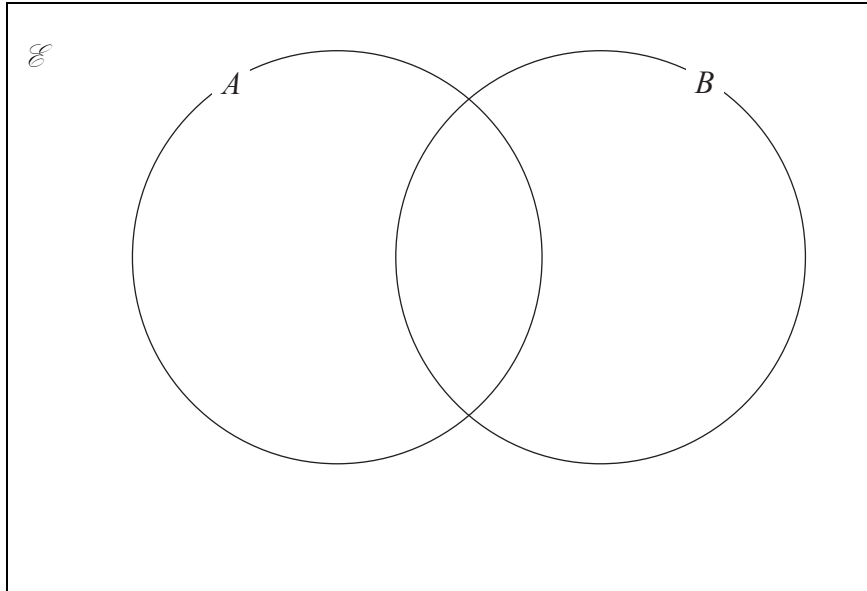
(c) Write down an equation of the line CD .

.....
(1)

(Total for Question 9 is 3 marks)

- 10 $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$
 $A = \{2, 4, 6, 8, 10, 12\}$
 $B = \{3, 6, 9, 12\}$

(a) Complete the Venn diagram below for the sets \mathcal{E}, A and B .



(3)

One of the numbers in \mathcal{E} is to be chosen at random.

(b) Find the probability that this number is not in set A **and** not in set B .

.....
 (2)

(Total for Question 10 is 5 marks)

- 11 Solve $5(2x - 3) = 20$
 Show clear algebraic working.

$x = \dots\dots\dots$

(Total for Question 11 is 3 marks)

12 The table shows the temperature recorded in Amsterdam at 6 am on each of five days.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Temperature (°C)	-5	-1	4	3	-6

(a) What is the range of the temperatures in the table?

.....°C
(2)

(b) What is the median of the temperatures in the table?

.....°C
(2)

(c) What percentage of the temperatures in the table are lower than 0 °C?

.....%
(2)

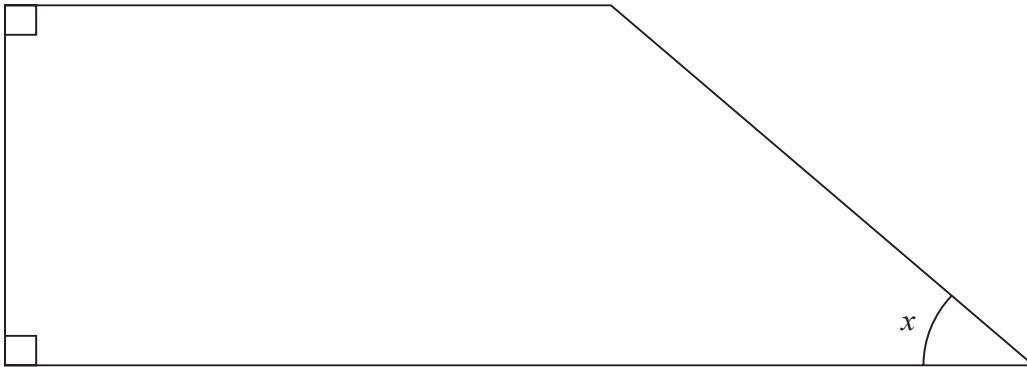
On Saturday of the same week, the temperature recorded in Amsterdam at 6 am was 8 °C higher than the temperature recorded at 6 am on Friday.

(d) What was the temperature recorded in Amsterdam at 6 am on Saturday?

.....°C
(2)

(Total for Question 12 is 8 marks)

13 Here is a quadrilateral.



(a) What is the mathematical name of this quadrilateral?

.....
(1)

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

.....^o
(1)

(c) On the quadrilateral, mark with arrows (\gg) a pair of parallel lines.

(1)

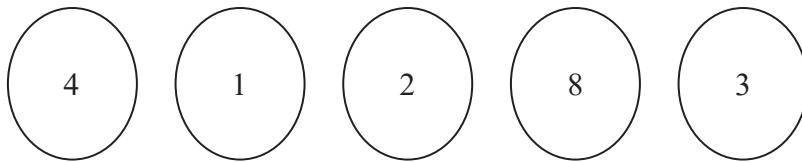
The quadrilateral has four angles.

(d) How many of these angles are right angles?

.....
(1)

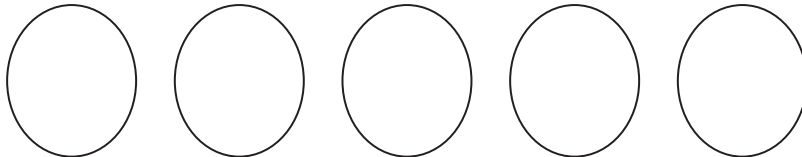
(Total for Question 13 is 4 marks)

- 14 Here are five discs.
Each disc has a number on it.



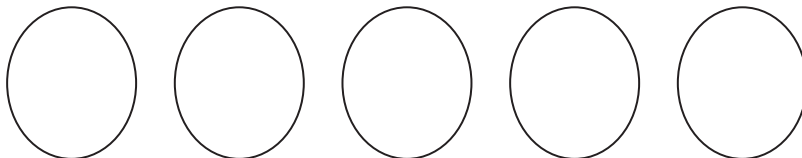
These five discs are arranged to make the number 41283

- (a) Show how all five discs can be arranged to make the smallest number.



(1)

- (b) Show how all five discs can be arranged to make the largest **even** number.



(1)

- (c) Which of the five numbers on the discs are factors of 21?

.....
(2)

- (d) Which of the five numbers on the discs are prime numbers?

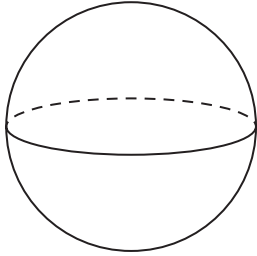
.....
(2)

(Total for Question 14 is 6 marks)

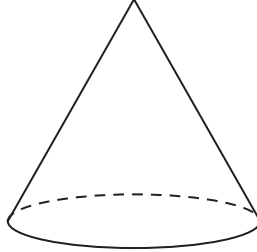
15 Here are three 3D shapes, **A**, **B** and **C**.

(a) Write down the mathematical name for each of these 3D shapes.

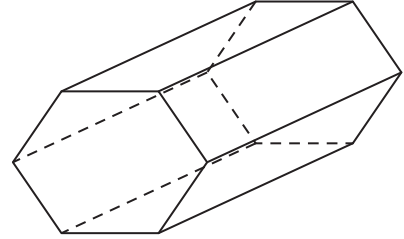
A



B



C



(i)

(ii)

(iii)

(3)

(b) (i) How many faces does shape **C** have?

(ii) How many vertices does shape **C** have?

.....

.....

(2)

(Total for Question 15 is 5 marks)

16 (a) Expand $5(3a + 4)$

.....
(1)

(b) Factorise $4c - 14$

.....
(1)

(c) Solve $5x - 11 = x + 6$
Show clear algebraic working.

$x =$
(3)

(Total for Question 16 is 5 marks)

- 17 (a) Complete the following estimates by writing a suitable metric unit on each of the dotted lines.
- (i) The distance from Paris to Berlin is about 1000
 - (ii) A bucket holds about 5 of water.
 - (iii) The area of the screen of a mobile phone is about 90.....
- (3)**

- (b) Write down an estimate for the height of a bedroom door in a house.
Use a suitable metric unit.

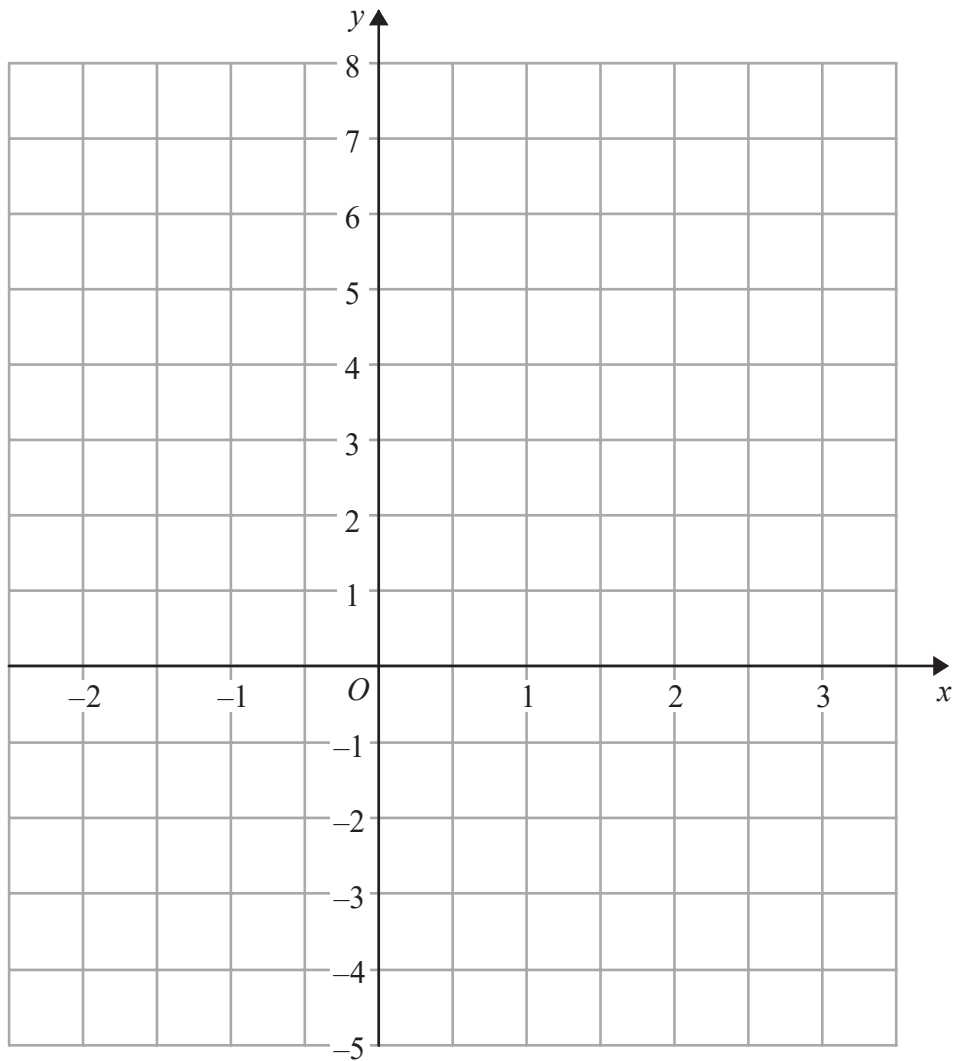


.....

(2)

(Total for Question 17 is 5 marks)

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



(Total for Question 18 is 3 marks)

19 (a) Simplify $(3k^2)^4$

.....
(2)

(b) Simplify $(21m^4n) \div (3n^{-5})$

.....
(2)

(Total for Question 19 is 4 marks)

20 Show that $3\frac{1}{5} \times 1\frac{5}{6} = 5\frac{13}{15}$

(Total for Question 20 is 3 marks)

- 21 Here is a solid prism made from bricks.
The bricks are identical triangular prisms.

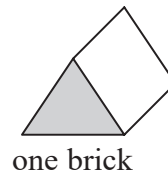
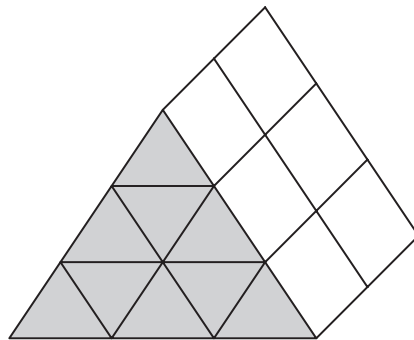


Diagram **NOT** accurately drawn

The volume of the prism is 54 cm^3
Work out the volume of each brick.

..... cm^3

(Total for Question 21 is 2 marks)

- 22 Make c the subject of $A = \frac{c}{y} - 5z$

.....
(Total for Question 22 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

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