**GCSE Mathematics**

**Practice Tests: Set 8**

**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. 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 must 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 questions.**

**Write your answers in the spaces provided.**

**You must write down all the stages in your working.**

**1** Write  as a decimal.

.......................................................

(**Total for Question 1 is 1 mark**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2** Write  as a fraction in its simplest form.

.......................................................

(**Total for Question 2 is 1 mark**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3** There are 840 tickets available for a concert.

 of these tickets have **not** been sold.

How many of the tickets have been sold?

.......................................................

(**Total for Question 3 is 2 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**4** Simplify 6*x* + 8*x* − 3*x*

.......................................................

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

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**5** Simplify 4*e* × 5*f*

.......................................................

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

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**6** Solve 8*p* = 24

*p* = .......................................................

(**Total for Question 1 is 1 mark**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**7** Daniel has five bags of coloured sweets.

He picks at random a sweet from each bag.

The table shows the probability that the sweet he picks from each bag is red.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Bag** | A | B | C | D | E |
| **Probability of red** | 0.7 | 0.9 | 0.5 | 1 | 0.2 |

(*a*)From which bag is Daniel least likely to pick a red sweet?

.......................................................

(**1**)

(*b*)Which bag contains only red sweets?

.......................................................

(**1**)

(*c*)From which bag is Daniel equally likely to pick a red sweet as a sweet of another colour?

.......................................................

(**1**)

(**Total for Question 7 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**8** (*a*)Change 650 centimetres into metres.

....................................................... metres

(**1**)

(*b*)Change 8 litres into millilitres.

....................................................... millilitres

(**1**)

(**Total for Question 8 is 2 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**9** The two-way table shows some information about where 50 people went for their last holiday.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **UK** | **Africa** | **USA** | Total |
| **Male** |  |  | 2 | 23 |
| **Female** | 16 | 9 |  |  |
| Total |  | 16 |  | 50 |

(*a*)Complete the table.

(**3**)

(*b*)What percentage of these 50 people were female **and** went on holiday in Africa?

....................................................... %

(**2**)

(**Total for Question 9 is 5 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**10** (*a*)Solve *k* – 4 = 13

*k* = .......................................................

(**1**)

(*b*)Simplify 10*t* + 4*d* − 3*t* + 2*d*

.......................................................

(**2**)

(**Total for Question 10 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**11** The bar chart gives information about the total number of medals won by each of six countries at the 2016 Olympic Games.



(*a*)Which of these countries won the fewest total number of medals?

.......................................................

(**1**)

Great Britain won 27 gold medals.

(*b*)How many of the medals won by Great Britain were **not** gold medals?

.......................................................

(**2**)

(*c*)Write down the ratio of the total number of medals won by Russia to the total number

of medals won by Germany.

Give your ratio in its simplest form.

.......................................................

(**2**)

The USA won

46 gold medals

37 silver medals

38 bronze medals

(*d*)What fraction of the total number of medals won by the USA were gold medals?

.......................................................

(**2**)

(**Total for Question 11 is 7 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**12** Memona has a 5 kg sack of rice and some empty bags.

She fills each bag with 475 grams of rice from the sack.

How many bags can Memona completely fill with rice?

.......................................................

(**Total for Question 10 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**13** The diagram shows points *A*, *B* and *C* on a square grid.

**

(*a*)Write down the coordinates of *C*.

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

(**1**)

(*b*)Measure the length of *BC*.

Give your answer in centimetres.

....................................................... cm

(**1**)

(*c*)On the grid, mark with a cross (X) the point *D* so that *ABCD* is a parallelogram.

Label this point *D*.

(**1**)

(**Total for Question 13 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**14** (*a*)Write down a multiple of 8 that is between 20 and 50.

.......................................................

(**1**)

There is only one prime number that is an even number.

(*b*)Write down this number.

.......................................................

(**1**)

Shreya says that 57 is a prime number.

(*c*)Is Shreya correct?

Give a reason for your answer.

.........................................................................................................................................................

.........................................................................................................................................................

(**1**)

(**Total for Question 14 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**15** (i) Write down the mathematical name of this 3-D shape.



.......................................................

(ii) How many faces does the shape have?

.......................................................

(iii) How many vertices does the shape have?

.......................................................

(**Total for Question 15 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**16** (*a*)Find the Lowest Common Multiple (LCM) of 12 and 20.

.......................................................

(**2**)

(*b*)Find the Highest Common Factor (HCF) of 24 and 56.

.......................................................

(**2**)

(**Total for Question 16 is 4 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**17**

**

*BCDE* is a rectangle.

*ABE* is an isosceles triangle.

*AB* = *AE*

Angle *BAE* = 80°

Work out the size of angle *x*.

....................................................... °

(**Total for Question 17 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**18** On the grid, draw the graph of *y* = 2*x* + 3 for values of *x* from −2 to 3.



(**3**)

(**Total for Question 18 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**19**

**

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

.........................................................................................................................................................

.........................................................................................................................................................

(**2**)

(*b*)On the grid, translate triangle **B** by the vector 

Label your triangle **C**.

(**1**)

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

.........................................................................................................................................................

(**1**)

(**Total for Question 19 is 4 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**20** (*a*)Write 8 × 104 as an ordinary number.

.......................................................

(**1**)

(*b*)Work out (3.5 × 105) ÷ (7 × 108)

Give your answer in standard form.

.......................................................

(**2**)

(**Total for Question 20 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**21** (*a*)Simplify *y*5 × *y*9

.......................................................

(**1**)

(*b*)Simplify (2*m*3)4

.......................................................

(**2**)

(*c*)Solve 5(*x* + 3) = 3*x* − 4

Show clear algebraic working.

*x* = .......................................................

(**3**)

(**Total for Question 21 is 6 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**22** Here is a Venn diagram.

|  |  |
| --- | --- |
| E |  |

Write down the numbers that are in the set

(i) *A*

....................................................................

(ii) **

....................................................................

(**2**)

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

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**23** (*a*)Make *a* the subject of the formula *M* = *ac* – *bd*

.......................................................

(**2**)

(*b*)Solve the inequality 5*x* – 4 < 36

.......................................................

(**2**)

(*c*)Factorise fully 18*e*2 *f* 3 – 12*e*3 *f*

.......................................................

(**2**)

(**Total for Question 23 is 6 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**24** (*a*)Factorise *x*2 + 2*x* − 24

.......................................................

(**2**)

(*b*) Hence, solve *x*2 + 2*x* – 24 = 0

.......................................................

(**1**)

(**Total for Question 24 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**25** The accurate scale drawing shows the positions of two ships, *L* and *M*.



(*a*)Find the bearing of ship *M* from ship *L*.

.......................................................°

(**1**)

The scale of the drawing is 1 cm to 5 km.

Ship *P* is 40 km from *L* and on a bearing of 240° from *M*.

(*b*)On the diagram, mark with a cross (×) the position of ship *P*.

(**3**)

(**Total for Question 25 is 4 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**26** You can use this graph to change between temperatures in degrees Celsius (°C) and

temperatures in degrees Fahrenheit (°F).



The temperature in Dubai on Monday increased by 20 °C from midnight to midday.

(*a*)What is this temperature increase in degrees Fahrenheit?

....................................................... °F

(**2**)

Maninder says,

“30 °C is the same as 86 °F, therefore 60 °C will be the same as 172 °F.”

(*b*)Is Maninder correct?

Give a reason for your answer.

.........................................................................................................................................................

.........................................................................................................................................................

(**1**)

(**Total for Question 26 is 3 marks**)

**TOTAL FOR PAPER IS 80 MARKS**

**BLANK PAGE**