

# GCSE Mathematics

## Practice Tests: Set 8

### Paper 3F (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 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 the number 72.163 correct to 1 decimal place.

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

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- 2 Write down two multiples of 18.

..... and .....

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

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- 3 Write 0.7 as a percentage.

.....%

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

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- 4 Write brackets in this calculation so that the answer is correct.

$$25 + 3 \times 7 - 2 = 40$$

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

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5 Here is a list of numbers.

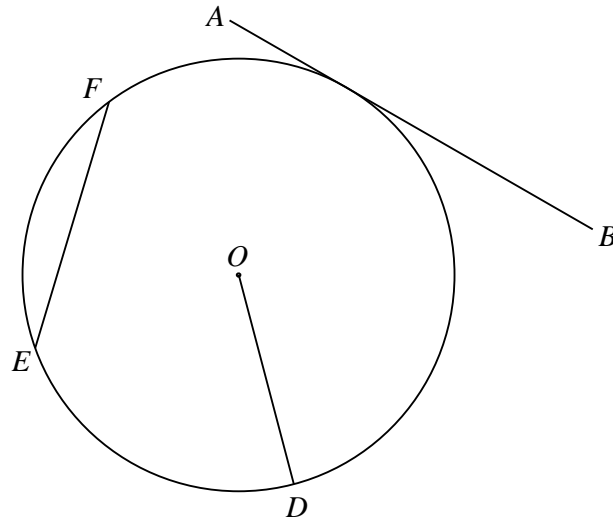
9235      9842      6386      8607      9417

Write down the smallest odd number in the list.

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

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6



The diagram shows a circle, centre  $O$ .  
 $D$ ,  $E$  and  $F$  are points on the circle.  
The line  $AB$  touches the circle.

Write down the mathematical name for the line

(i)  $AB$

.....

(ii)  $OD$

.....

(iii)  $EF$

.....

**(Total for Question 6 is 3 marks)**

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- 7 Maria asks the students in her class how many brothers they each have. Here are her results.

2      1      3      4      1      0      0      2      3      1  
 2      2      3      1      1      0      2      4      1      1

- (a) Complete the frequency table for her results.

Number of brothers	Tally	Frequency
0		
1		
2		
3		
4		

(2)

- (b) Write down the modal number of brothers.

.....  
(1)

- (c) Write down the fraction of these students who have no brothers.

.....  
(1)

**(Total for Question 7 is 4 marks)**

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- 8 The table shows the lowest temperature on one day in December for each of six cities.

City	Temperature in °C
Athens	9
Barcelona	6
Bucharest	-3
Kazan	-12
Kiev	-5
Moscow	-9

- (a) Which of these cities had the lowest temperature?

.....  
(1)

- (b) Work out the difference between the lowest temperature in Barcelona and the lowest temperature in Moscow.

.....°C  
(1)

In Podgorica, the lowest temperature was 14 °C higher than the lowest temperature in Bucharest.

- (c) Work out the lowest temperature in Podgorica.

.....°C  
(1)

**(Total for Question 8 is 3 marks)**

9 Ahmed buys a rake and some packets of seeds.

The rake costs £19.50.

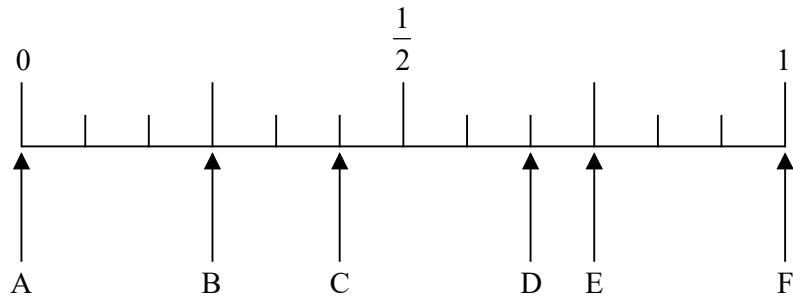
Each packet of seeds costs £1.99.

Ahmed pays with two £20 notes and receives £8.56 change.

Work out the number of packets of seeds Ahmed buys.

.....  
**(Total for Question 9 is 4 marks)**

- 10 A box contains 3 red bricks, 2 yellow bricks and 7 orange bricks.  
There are no other bricks in the box.



Edward is going to take at random a brick from the box.

Write down the letter of the arrow that points to the probability that he takes

- (i) a red brick,

.....

- (ii) a yellow brick or an orange brick,

.....

- (iii) a brick that is **not** blue,

.....

- (iv) a green brick.

.....

**(Total for Question 10 is 4 marks)**

**11** Tim caught a plane to New York from Boston.  
The plane left at 6 55 pm.

(a) Work out how many minutes it was from the time when Tim arrived at the airport to the time when the plane left.

.....minutes  
**(1)**

The plane left Boston at 6 55 pm.  
The plane took 1 hour 24 minutes to reach New York.

(b) What was the time in Boston when the plane reached New York?

.....  
**(1)**  
**(Total for Question 11 is 2 marks)**

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- 12 Pauline throws a biased dice 240 times.  
The table gives information about her results.

Score	Frequency
1	90
2	30
3	18
4	48
5	16
6	38

Pauline is going to draw a pie chart for her results.

- (a) Work out the angle in the pie chart for a score of 6.

.....°  
(2)

Donna spins a biased 5-sided spinner a number of times.  
He draws a pie chart for his results.

The table gives the angle in the pie chart for each number the spinner lands on.

Number on spinner	Angle in pie chart
1	60°
2	80°
3	100°
4	70°
5	50°

The spinner lands on 3 a total of 250 times.

- (b) Work out the total number of times Donna spins the spinner.

.....  
(2)

(Total for Question 12 is 4 marks)

13 (a) Simplify  $t + t + t$

.....  
(1)

(b) Simplify  $3p \times 5q$

.....  
(1)

(c) Expand  $4(y - 5)$

.....  
(1)

(d) Solve  $\frac{8x}{5} = 9.2$

$x =$  .....  
(2)

(Total for Question 13 is 5 marks)

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14 Here is a trapezium.

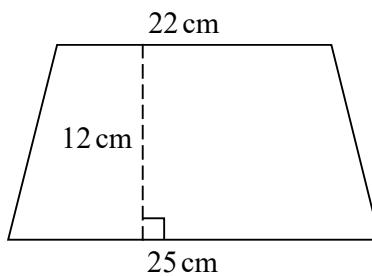


Diagram **NOT**  
accurately drawn

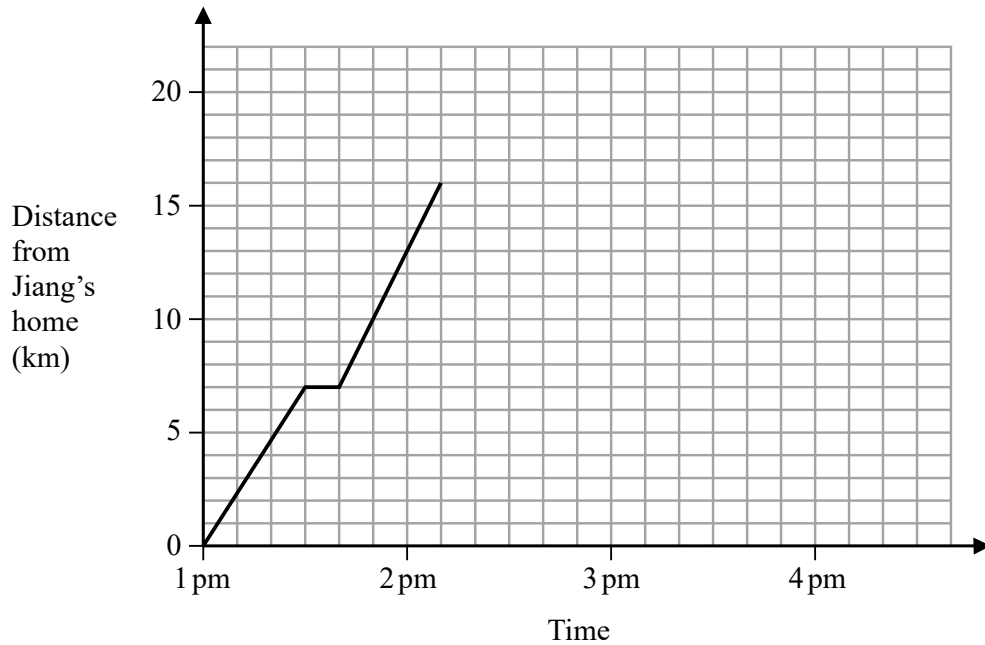
Work out the area of the trapezium.

.....cm<sup>2</sup>

(Total for Question 14 is 2 marks)

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- 15 Jiang left her home at 1 pm to cycle to a bicycle shop.  
Here is the travel graph for Jiang's journey to the bicycle shop.



Jiang stopped on the way to the bicycle shop for a rest.

- (a) For how long did she stop for a rest?

.....minutes  
(1)

- (b) Work out Jiang's average speed, in kilometres per hour, for that part of her journey from her home to when she stopped for a rest.

.....kilometres per hour  
(2)

Jiang spent 40 minutes at the bicycle shop.  
She then cycled home at a constant speed.  
She got to her home at 3 50 p.m.

- (c) Show all this information on the graph.

(2)

**(Total for Question 15 is 5 marks)**

16

1 euro = 1.25 Japanese Yen
1 Canadian dollar = 0.72 euros

Natsuko has 360 Japanese Yen.

Zoe has 425 Canadian dollars.

Natsuko and Zoe each change their money into euros.

Zoe gets more euros than Natsuko.

How many more?

.....euros

**(Total for Question 16 is 3 marks)**

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- 17 Aaron is going to buy a laptop.  
The laptop costs 39 000 rupees.  
Aaron already has  $\frac{1}{3}$  of the cost of the laptop.  
He needs to save for the rest of the cost.

Aaron has a Saturday job.  
Each Saturday his pay is 5300 rupees.  
He is going to save 55% of his pay.

Work out the number of Saturdays Aaron must work until he has saved the rest of the cost of the laptop.

.....  
**(Total for Question 17 is 5 marks)**

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- 18** Three numbers have  
a mean of 17  
a median of 20  
a range of 27.

Find the three numbers.

..... , ..... , .....

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

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19

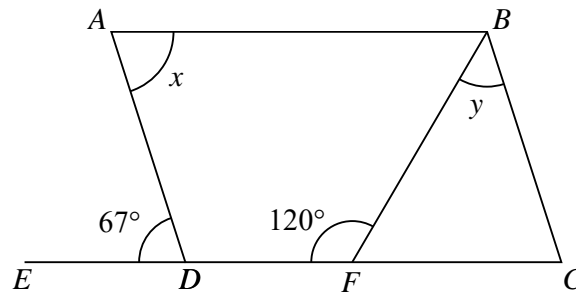


Diagram **NOT**  
accurately drawn

*ABCD* is a parallelogram.  
*EDFC* is a straight line.

(a) (i) Write down the size of angle *x*.

.....°

(ii) Give a reason for your answer.

.....  
(2)

(b) Work out the size of angle *y*.

.....°  
(2)

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

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- 20 The table gives information about the number of trees in each of 20 gardens.

Number of trees	Frequency
0	2
1	7
2	3
3	4
4	3
5	1

Work out the total number of trees in these gardens.

.....  
**(Total for Question 20 is 2 marks)**

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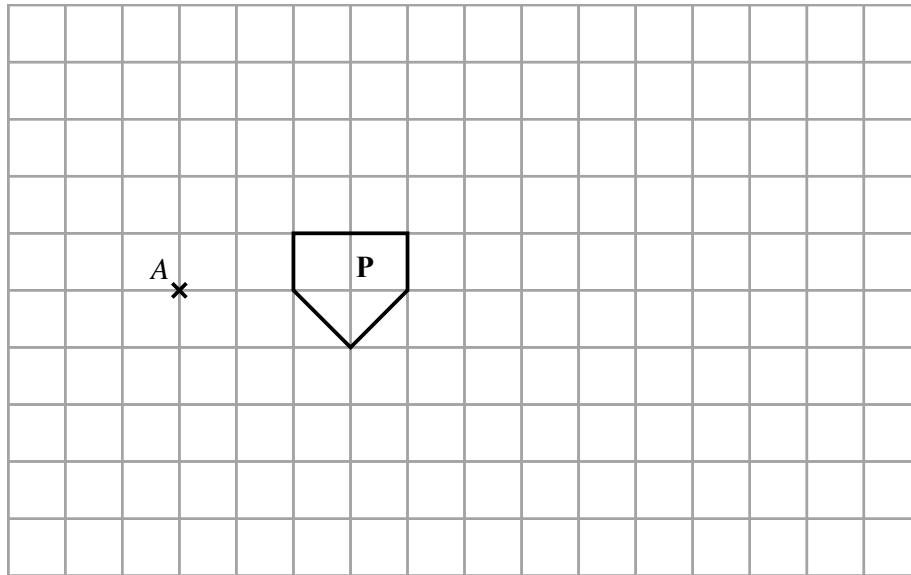
- 21 Charlotte earns £8.50 per hour.  
She gets a pay rise of 6%

Work out how much Charlotte earns per hour after her pay rise.

£.....  
**(Total for Question 21 is 3 marks)**

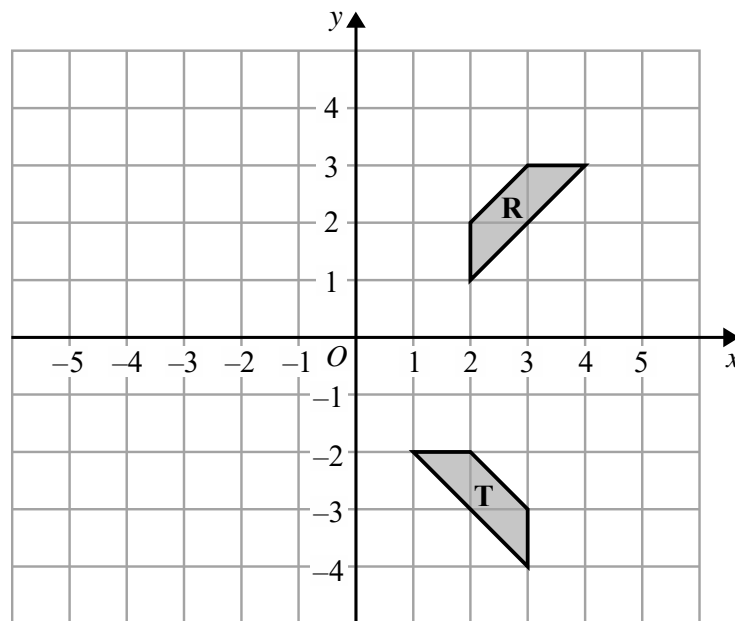
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(a) On the grid, enlarge shape **P** with scale factor 3 and centre **A**.

(2)



(b) Describe fully the single transformation that maps shape **R** onto shape **T**.

.....

.....

(3)

(Total for Question 22 is 5 marks)

23  $A$ ,  $B$  and  $C$  are three cities.

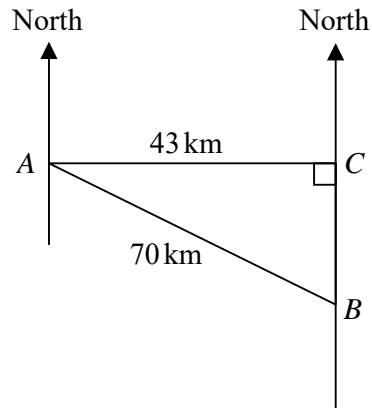


Diagram **NOT** accurately drawn

City  $C$  is due east of city  $A$  and due north of city  $B$ .  
City  $A$  is 43 km from city  $C$  and 70 km from city  $B$ .

Work out the bearing of city  $B$  from city  $A$ .  
Give your answer correct to the nearest degree.

.....°  
(Total for Question 23 is 4 marks)

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24 (a) Simplify  $m^7 \times m^4$

.....  
(1)

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

.....  
(2)

(c) Expand and simplify  $4(g - 2h) + 5(2g - 3h)$

.....  
(2)

(d) Expand and simplify  $(y - 7)(y + 5)$

.....  
(2)

**(Total for Question 24 is 7 marks)**

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- 25 Write 280 as a product of its prime factors.  
Show your working clearly.

.....  
**(Total for Question 25 is 3 marks)**

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**TOTAL FOR PAPER IS 80 MARKS**