

GCSE Mathematics

Practice Tests: Set 21

Paper 2F/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 94
- 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 22 questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Mairi has 200 flowers.

Of these flowers

37 are white

25 are yellow

42 are pink

The rest of the flowers are red.

Express the number of red flowers as a fraction of the total number of flowers.

Give your fraction in its simplest form.

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

- 2 Sandeep buys some flowers.
He has 5000 rupees to spend.
He buys 6 carnations at 220 rupees each.
He also buys some roses at 295 rupees each.
Sandeep should receive 140 rupees in change from his 5000 rupees.
Work out how many roses Sandeep buys.

.....
(Total for Question 2 is 4 marks)

- 3 Ingrid buys a bag in Sweden.
The price of the bag is 1342 Swedish Krona.
The price of an identical bag in Finland is 125 euros.

Using an exchange rate of

$$1 \text{ euro} = 11 \text{ Swedish Krona}$$

work out how much cheaper the bag is in Sweden than it is in Finland.
You must give the units of your answer.

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

- 4 Use your calculator to work out the value of

$$\frac{5.21+6.37}{9.8} + 8.3^2$$

Write down all the figures on your calculator display.

.....
(Total for Question 4 is 2 marks)

5 Johan wants to make some small cakes.

He finds a recipe that says he needs 360 grams of flour to make 15 small cakes.

Johan has 0.85 kg of flour.

Johan works out how much flour he would need to make 38 small cakes, using the information given in the recipe.

Does Johan have enough flour, according to the recipe, to make 38 small cakes?
Show your working clearly.

(Total for Question 5 is 4 marks)

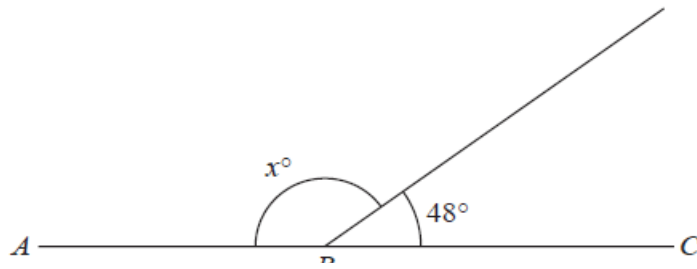


Diagram NOT
accurately drawn

ABC is a straight line.

(a) (i) Work out the value of x

$x = \dots\dots\dots$

(1)

(ii) Give a reason for your answer to (i)

.....

(1)

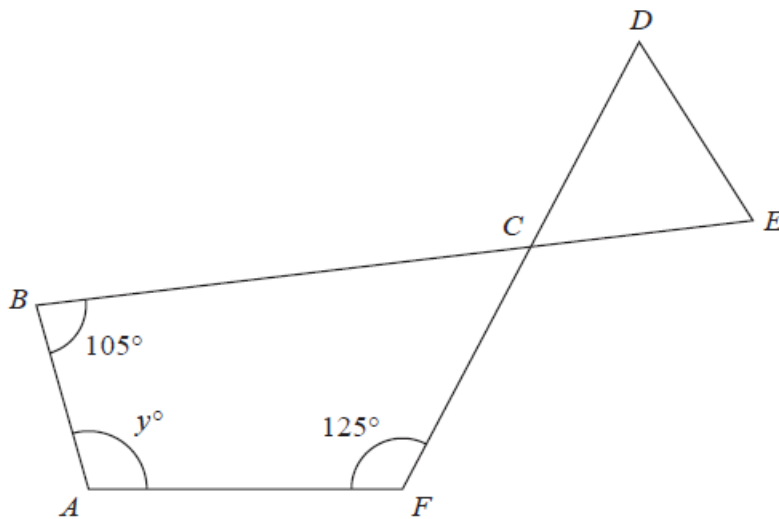


Diagram NOT
accurately drawn

CDE is an equilateral triangle.

$ABCF$ is a quadrilateral.

BCE and DCF are straight lines.

(b) Work out the value of y

You must show your working.

$$y = \dots\dots\dots (3)$$

(Total for Question 6 is 5 marks)

- 7 3 cups each contain 200 millilitres of water.
4 jugs each contain x millilitres of water.

Emma pours all the water from the 3 cups and the 4 jugs into a container.

The total amount of water that Emma pours into the container from the 3 cups and 4 jugs is 3.5 litres.

Work out the value of x

$$x = \dots\dots\dots$$

(Total for Question 7 is 4 marks)

8 Here are two special offers for buying dog food.

<p style="text-align: center;">Special offer A</p> <p>Normally \$1.40 a tin</p> <p>Special offer Buy 1 tin, get 1 tin half price</p>
--

<p style="text-align: center;">Special offer B</p> <p>Normally pack of 6 tins for \$7.20</p> <p>Special offer 20% off each pack of 6 tins</p>

Gaspar buys 24 tins of dog food using special offer A.

Anna buys 24 tins of dog food using special offer B.

Work out the difference between the amount that Gaspar pays and the amount that Anna pays.

\$

(Total for Question 8 is 4 marks)

9 In 2001, the total number of cars produced in the world was 39.8 million.

In 2006, the total number of cars produced in the world was 10.1 million greater than the total number produced in 2001

- (a) Express 10.1 million as a percentage of 39.8 million.
Give your answer correct to one decimal place.

..... %
(2)

In 2011, the total number of cars produced in the world was 59.9 million.

In 2016, the total number of cars produced in the world was 21% greater than the total number produced in 2011

In 2016, the total number of cars produced in the world was N million.

- (b) Work out the value of N .
Give your answer correct to the nearest whole number.

$N =$
(3)

(Total for Question 9 is 5 marks)

- 10** (a) Find the highest common factor (HCF) of 56 and 84
Show your working clearly.

.....
(2)

- (b) Find the lowest common multiple (LCM) of 60 and 72
Show your working clearly.

.....
(2)

(Total for Question 10 is 4 marks)

11 Behnaz makes 300 celebration cards so that

$$\begin{array}{l} \text{number of} \\ \text{birthday cards} \end{array} : \begin{array}{l} \text{number of} \\ \text{anniversary cards} \end{array} : \begin{array}{l} \text{number of} \\ \text{congratulations cards} \end{array} = 7 : 5 : 3$$

$\frac{2}{5}$ of the birthday cards have numbers on them.

36% of the anniversary cards have numbers on them.

None of the congratulations cards have numbers on them.

Work out what fraction of the 300 cards have numbers on them.

Give your answer in its simplest form.

.....
(Total for Question 11 is 5 marks)

- 12 The table gives information about the number of gold stars won by each of 25 students in class 7T last week.

Number of gold stars	Number of students
0	6
1	5
2	4
3	7
4	3

- (a) Work out the mean number of gold stars won.

.....
(3)

A student in class 8R is to be chosen at random.

The probability that this student won at least one gold star last week is 0.39

- (b) Work out the probability that this student did **not** win at least one gold star last week.

.....
(1)

(Total for Question 12 is 4 marks)

- 13** An aeroplane travelled from New York City to Los Angeles.
The aeroplane travelled a distance of 3980 kilometres in 5 hours 24 minutes.
Work out the average speed of the aeroplane.
Give your answer in kilometres per hour correct to the nearest whole number.

..... kilometres per hour

(Total for Question 13 is 3 marks)

- 14** Pasha invests 50 000 dollars in a savings account for 4 years.
He gets 1.3% per year compound interest.

Work out how much money Pasha will have in his savings account at the end of 4 years.
Give your answer correct to the nearest dollar.

..... dollars

(Total for Question 14 is 3 marks)

- 15 The diagram shows a shape $ABCDEFG$ made from a square $ABDF$ and three identical isosceles triangles BCD , DEF and FGA .

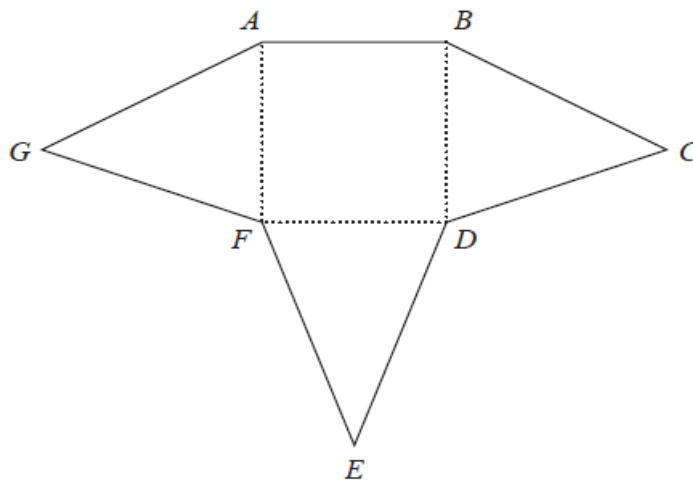
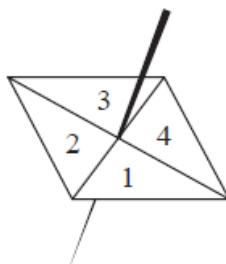


Diagram **NOT**
accurately drawn

The perimeter of the square $ABDF$ is 48 cm.
 The perimeter of each isosceles triangle is 30 cm.
 Work out the perimeter of the shape $ABCDEFG$.

..... cm
 (Total for Question 15 is 4 marks)

16 Here is a biased 4-sided spinner.



The table gives the probabilities that, when the spinner is spun once, it will land on 1 or it will land on 3

Number	1	2	3	4
Probability	0.26		0.18	

The probability that the spinner will land on 2 is equal to the probability that the spinner will land on 4

Ravina is going to spin the spinner a number of times.

Ravina works out that an estimate for the number of times the spinner will land on 3 is 45

Work out an estimate for the number of times the spinner will land on 4

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

- 17 A circle has radius 6.5 cm.
Calculate the circumference of the circle.
Give your answer correct to 3 significant figures.

..... cm
(Total for Question 17 is 2 marks)

- 18 The diagram shows triangle PQR .

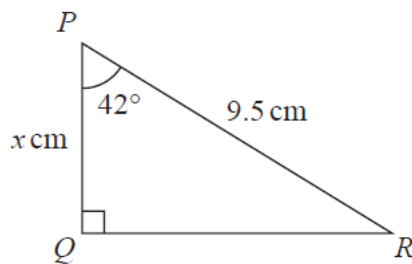


Diagram **NOT**
accurately drawn

Work out the value of x
Give your answer correct to one decimal place.

$x =$
(Total for Question 18 is 3 marks)

19 Change a speed of 81 kilometres per hour to a speed in metres per second.

..... metres per second

(Total for Question 19 is 3 marks)

- 20** Larry is a delivery man.
He has 7 parcels to deliver.
The mean weight of the 7 parcels is 2.7 kg
Larry delivers 3 of the parcels.
Each of these 3 parcels has a weight of W kg
The mean weight of the other 4 parcels is 3.3 kg
Work out the value of W

$W =$

(Total for Question 20 is 3 marks)

- 21 The diagram shows parts of three regular polygons, **A**, **B** and **C**, meeting at a point.

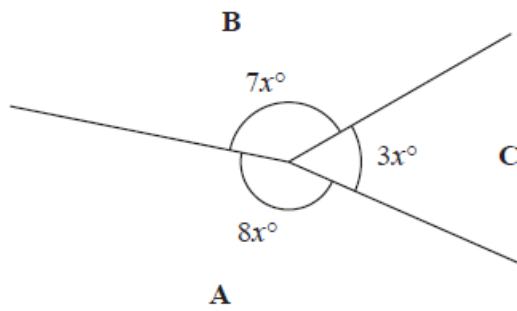


Diagram **NOT**
accurately drawn

Polygon **B** has n sides.

Work out the value of n .

$n = \dots\dots\dots$

(Total for Question 21 is 4 marks)

22 The diagram shows an 8-sided shape $ABCDEFGH$.

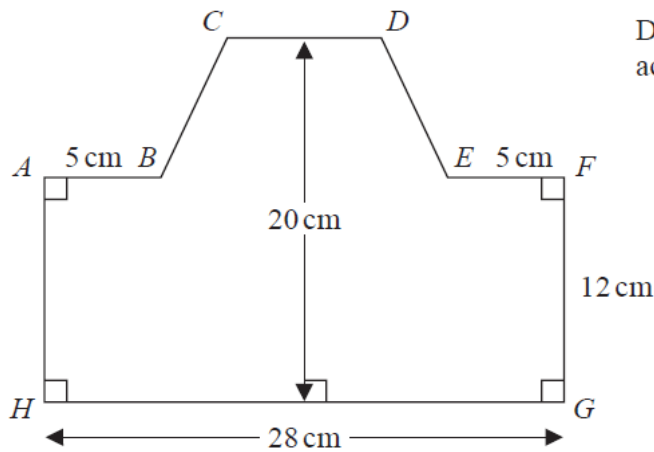


Diagram **NOT** accurately drawn

$HG = 28 \text{ cm}$ $FG = 12 \text{ cm}$ $AB = EF = 5 \text{ cm}$

The height of the shape is 20 cm

CD is parallel to HG

The area of shape $ABCDEFGH$ is 434 cm^2

Find the length of CD .

..... cm

(Total for Question 22 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS

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