GCSE Mathematics Practice Tests: Set 1

Paper 2F (Calculator)
Time: 1 hour 30 minutes

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator.

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.

Practice Papers Set 1 — Paper 2F

Students	Question number	
1	1	Use decimal place value
1	2	Order decimals
1	3	Simplify expression
1	4	Calculate with decimals
2	5	Interpret scale
5	6	Complete frequency table and pictogram
3	7	Solve factors problem
1	8	Interpret linear equation
4	9	Solve money problem
1	10a	Interpret statement
1	10b	Interpret statement
2	11	Name 3D shapes
2	12a	Substitute numbers into word formula
3	12b	Substitute numbers into word formula
2	13a	Interpret percentages
2	13b	Convert percentage to fraction
2	13c	Find percentage of quantity
1	14a	Interpret real-life graph
1	14b	Interpret real-life graph
3	14c	Find area and interpret real-life graph
1	15a	Interpret travel graph
1	15b	Interpret travel graph
1	15c	Interpret travel graph
1	15d	Interpret travel graph
2	16a	Solve area problem
3	16b	Find perimeter and area of shape
4	17	Solve word problem
3	18a	Find probability
2	18b	Use relative frequency
3	19	Solve currency conversion problem
3	20	Find hypotenuse of right-angled triangle
1	21a	Describe correlation
2	21b	Draw and use line of best fit
5	22	Solve word money problem
2	23	Use sequences
3	24	Solve simultaneous equations
4	25	Solve fraction and ratio problem

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. Write down the value of the 9 in 213.95

   9 tenths or $\frac{9}{10}$

   ....

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

   0.74   0.744   0.704   0.7   0.07

   0.07, 0.7, 0.704, 0.74, 0.744
   ....

   (Total 1 mark)

3. Simplify $3 \times g \times 5 \times h$

   15gh
   ....

   (Total 1 mark)

4. Work out $5.9 + 3.17^2$

   $5.9 + 3.17$

   $\begin{array}{r} 3.17 \\ \times 3.17 \\ \hline \end{array}$

   15.7489
   ....

   (Total 1 mark)

5.   A petrol tank holds 48 litres of petrol when it is full.
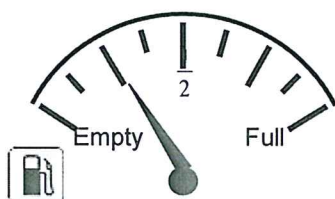
The scale shows information about how much petrol there is in the petrol tank.

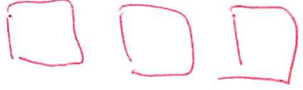Work out the number of litres of petrol in the petrol tank.
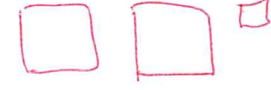
.......12..... litres

(Total 2 marks)

6. The tally chart shows information about the numbers of text messages sent by some students last week.

Name of student	Tally	Frequency
Anna	ЖНГ ЖНГ ЖНГ ЖНГ IIII	24
Bhavini	ЖНГ ЖНГ II	12
Cassie	ЖНГ ЖНГ ЖНГ	15
David	ЖНГ IIII	9

(i) Complete the frequency column.

The pictogram shows the numbers of text messages sent by Anna and Cassie.

Anna	□ □ □ □ □ □
Bhavini	□ □ □
Cassie	□ □ □ ⌐
David	□ □ ◻

Key: □ = 4

(ii) Complete the pictogram and the key.

(Total 5 marks)

7. Michael writes down 4 different factors of 60
He adds the 4 factors together.
He gets a number greater than 20 but less than 35

What 4 factors could Michael have written down?

10 ...... 12 ...... 5 ...... 2 ......

(Total 3 marks)

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8. Asif was asked to solve the equation $8x + 1 = 5$

Here is his working.

$$8x + 1 = 5$$
$$8x = 4$$
$$x = \frac{8}{4}$$
$$x = 2$$

Asif's answer is wrong.
What mistake did he make?

He has divided 8 by 4 it should
be 4 divided by 8.

(Total 1 mark)

9. On 1st June, Brian has £312 in his bank account.

On 5th June he puts £120 into his bank account.

On 10th June he puts £25 into his bank account.

This is how much Brian spends from his bank account from 1st June to 15th June.

Supermarket £42.40
Mobile phone bill £21.05
Grocery shop £24.30
Electricity bill £64.20
Online book purchase £18.32
Council tax £144.50
Clothes £84.20
Supermarket £51.35

On 16th June, Brian wants to know how much money there is in his bank account.

Work out how much money there is in his bank account.

Balance = £312 + £145
= £457

Sum of items = £450.32

Final balance = 457 – 450.32
= 6.68

£ ...... 6.68 ....

(Total 4 marks)

10. Jim says,

"When you subtract a number from 10, the answer will always be less than 10"

(a) Is Jim correct?
You must give a reason with you answer.

No   10 − − 2 = 12

....

....

(1)

Lucy says,

"When you halve a whole number that ends in 4, you always get a number that ends in 2"

(b) Write down an example to show that Lucy is wrong.

14 ÷ 2 = 7

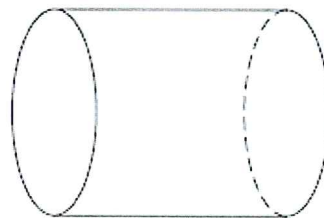..

(1)

(Total 2 marks)

11. Write down the name of each of these two 3-D shapes.

(i)   (ii)
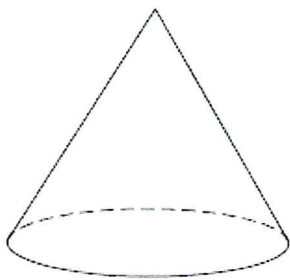
(i) ...... Cone ......   (ii) ...... Cylinder ......

(Total 2 marks)

12. George and Harry work in a factory.

They use this rule to calculate their total pay in pounds.

Total pay = 8 × number of hours worked + bonus

George worked 30 hours.
He was paid a bonus of £20

TP = 8h + B

(a) Work out George's total pay.

$(8 \times 30) + 20$

£ .... 260 ....

(2)

Harry worked 34 hours.
His total pay was £300

(b) Work out the bonus that Harry was paid.

$34 \times 8 = 272$
$300 - 272$

$B \rightarrow \boxed{+8h} \rightarrow TP$
$B \leftarrow \boxed{-8h} \leftarrow TP$

£ .... 28 ....

(3)

(Total for Question 7 is 5 marks)

13. Trina collects eggs from her hens.
She labels their eggs small or medium or large.

    20% of the eggs she collected in May were small.
    24% of the eggs she collected in May were large.

(a) What percentage of the eggs she collected in May were medium?

$$100 - 20 - 24$$

............................56.........%

(2)

(b) Express 24% as a fraction.
Give your fraction in its simplest form.

$$\frac{24}{100} = \frac{12}{50} = \frac{6}{25}$$

6/25

....

(2)

Tina collected 75 eggs in May.

(c) Work out 20% of 75.

$$10\% \rightarrow 7.50$$
$$10\% \rightarrow 7.50$$
$$\overline{20\%} \quad \overline{15.00}$$

..............15.00.............

(2)

(Total 6 marks)

14. John cleans carpets of different areas.
He uses this graph to work out the cost of cleaning a carpet.
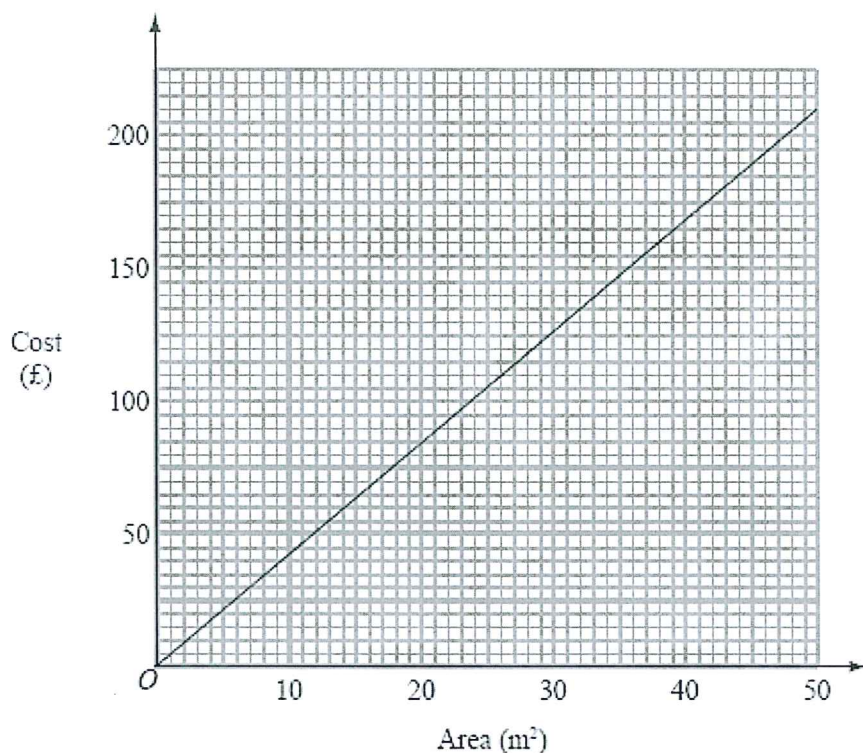
A carpet has an area of 30 m².

(a) Use the graph to find the cost of cleaning this carpet.

£ *123-127*

(1)

It costs £150 to clean another carpet.

(b) Use the graph to find the area of this carpet.

35-36 m²

(1)

A rectangular carpet has a length of 8.6 m.
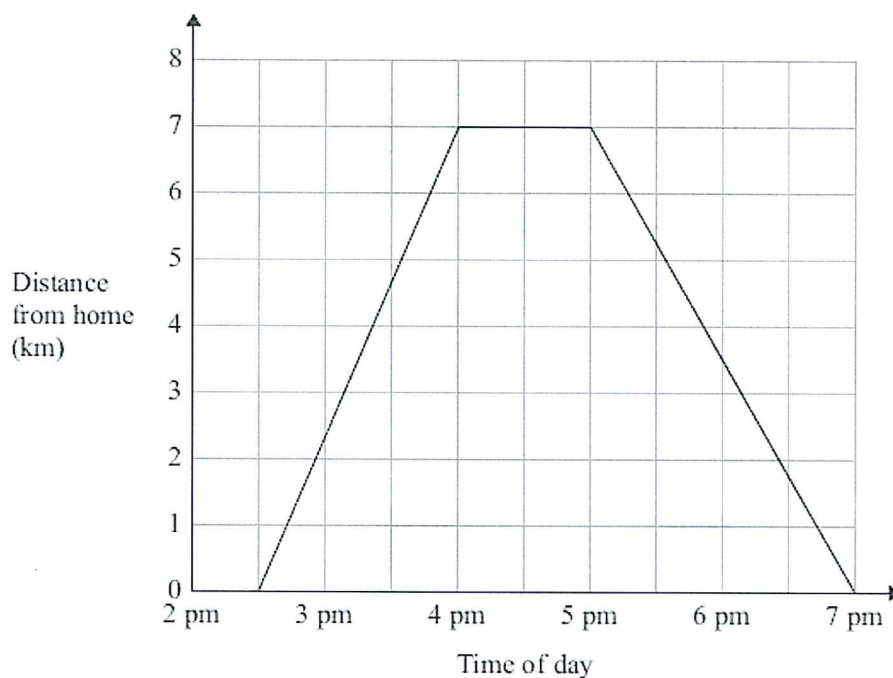It has a width of 5 m.

(c) Work out the cost of cleaning this carpet.

£ *175-185.*

(3)

(Total 5 marks)

15. Suha walked 7 km from her home.

She then had a rest.
Suha then walked home.

Here is Suha's travel graph.

(a) What time did Suha leave home?

2:30PM

(1)

(b) How long did Suha rest for?

1 hour

(1)

(c) What time did Suha start to walk home?

5pm

(1)

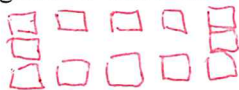(d) Work out the total time that Suha was away from home.

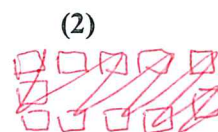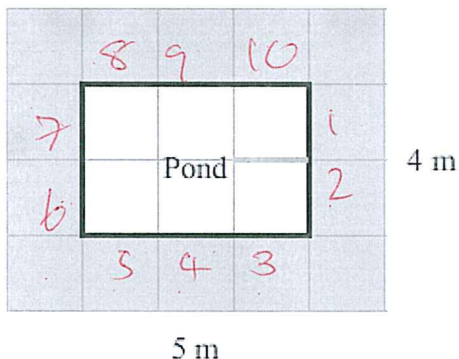4·5 .... hours

(1)

(Total 4 marks)

16. Priyesh has 12 square paving stones.
He will use all the stones to make a patio that is a rectangle.

(a) Draw a diagram to show how Priyesh can use these stones to make a patio that is a rectangle.

(2)

The diagram shows a pond with a path around it.

4 m

5 m

(b) (i) Work out the perimeter of the pond. *fence = +*

.... 10 .... m

(ii) Work out the area of the path.

.... 14 ....

(3)

(Total 5 marks)

17. A machine makes 36 trophies every hour.

The machine makes trophies for $8\frac{1}{2}$ hours each day, on 5 days of the week.

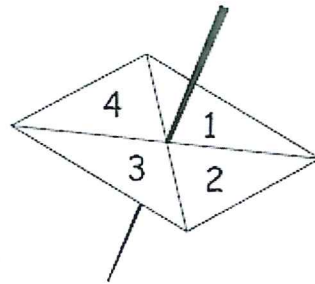The trophies are packed into boxes.
Each box holds 8 trophies.

How many boxes are needed for all the trophies made each week?

$36 \times 8.5 \times 5 = 1530$

$1530 \div 8 = 191.25$

191 or 192

(Total 4 marks)

18. Here is a four-sided spinner.
The spinner is biased.

The table shows the probabilities that the spinner will land on 1 or on 3

Number	1	2	3	4
Probability	0.2		0.1	

$= 1$

The probability that the spinner will land on 2 is the same as the probability that the spinner will land on 4

(a) Work out the probability that the spinner will land on 4

$1 - 0.2 - 0.1 = 0.7$

$0.7 \div 2 = 0.35$

.... 0.35 ....

(3)

Shunya is going to spin the spinner 200 times.

(b) Work out an estimate for the number of times the spinner will land on 3

Expected Estimated Times = P(A) × No of trials.

$= 0.1 × 200$

$= 20$

.... 20 ....

(2)

(Total 5 marks)

19. Eric travels from the UK to India every year.

In 2010, the exchange rate was £1 = 67.1 rupees.
In 2012, the exchange rate was £1 = 82.5 rupees.

In 2010 Eric changed £600 into rupees.

How many pounds (£) did Eric have to change to rupees in 2012 to get the same number of rupees as he did in 2010?
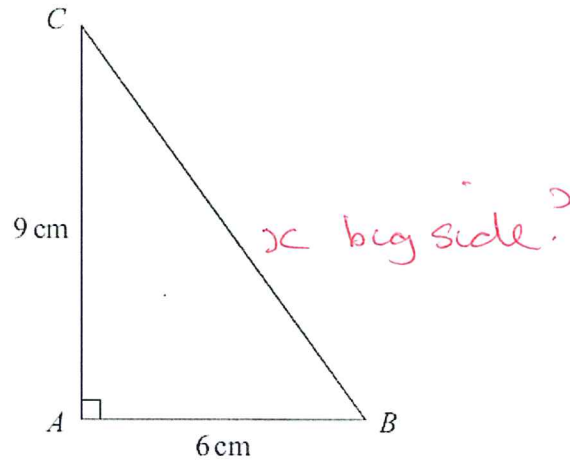
$600 \times 67.1 = 40260$

$40260 \div 82.5$

£ ....488....

(Total 3 marks)

20.

x big side?

ABC is a right-angled triangle.

$AB = 6$ cm.
$AC = 9$ cm.

Work out the length of BC.
Give your answer correct to 3 significant figures.

big side?

Square $= 9^2 = 81$
Square $= 6^2 = \dfrac{36}{117}$
Add
Square root $\sqrt{117}$

$= 10.8$

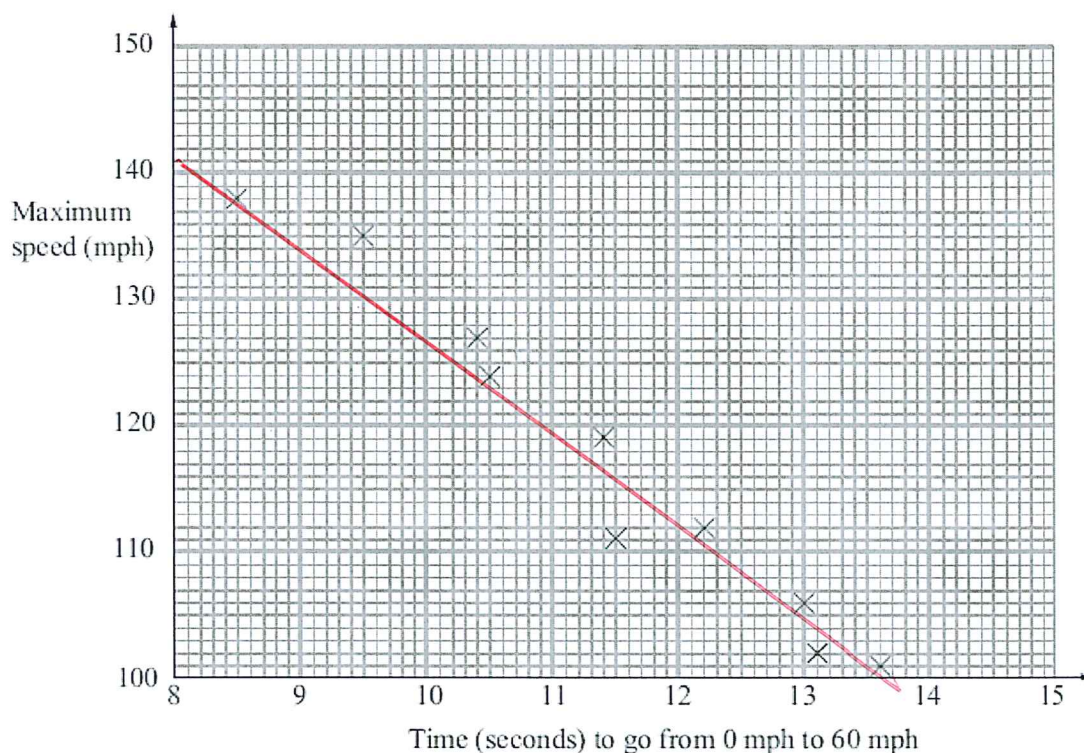... cm 10.8

(Total 3 marks)

21. The scatter graph shows some information about 10 cars.

It shows the time, in seconds, it takes each car to go from 0 mph to 60 mph.

For each car, it also shows the maximum speed, in mph.

(a) What type of correlation does this scatter graph show?

.......Negative....... (1)

The time a car takes to go from 0 mph to 60 mph is 11 seconds.

(b) Estimate the maximum speed for this car.

Line of Best fit.

117 – 123

.... mph
(2)

(Total 3 marks)

22. Ali is planning a party.

He wants to buy some cakes and some sausage rolls.

The cakes are sold in boxes.
There are 12 cakes in each box.
Each box of cakes costs £2.50.

The sausage rolls are sold in packs.
There are 8 sausage rolls in each pack.
Each pack of sausage rolls costs £1.20.

Ali wants to buy more than 60 cakes and more than 60 sausage rolls.
He wants to buy exactly the same number of cakes as sausage rolls.

What is the least amount of money Ali will have to pay?

LCM

① 12 ② 24 ③ 36 ④ 48 ⑤ 60 ⑥ 72 ⑦ ⑧ ⑨

① 8 ② 16 ③ 24 ④ 32 ⑤ 40 ⑥ 48 56 64 ⑨ 72

£ 25·80

(Total 5 marks)

23. The n th term of a sequence is $n^2 + 4$

Alex says

"The n th term of the sequence is always a prime number when n is an odd number."

Alex is wrong.

Give an example to show that Alex is wrong.

$9^2 + 4 = 81 + 4$
$= 85$

(Total 2 marks)

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24. Solve $\quad x + 2y = 3$

$\qquad\qquad x - y = 6$

$3y = -3$

$y \in \mathbb{B}$

$y \to \times 3 \to -3$
$y \leftarrow \div 3 \leftarrow -3$
$y = -1$

$x - -1 = 6$
$x + 1 = 6$
$x \to +1 \to 6$
$x \leftarrow -1 \leftarrow 6$

$x = \underline{\quad 5 \quad}$

$y = \underline{\quad -1 \quad}$

(Total 3 marks)

25. Colin, Dave and Emma share some money.

Colin gets $\dfrac{3}{10}$ of the money.

Emma and Dave share the rest of the money in the ratio 3 : 2.

What is Dave's share of the money?

28% or 14/50