edexcel

GCSE Mathematics Practice Tests: Set 5

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.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. 34 608 people watched a cricket match.

(*a*) Write 34 608 to the nearest thousand.

35 000

.....

(1)

431 of these people were children.

(*b*) Write 431 to the nearest ten.

430

.....

(1)

(Total 2 marks)

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2. A film starts at 1830. - 6:30pm
The film ends at 2050. - 8:50pm

(*a*) How long does the film last?

or 140 mins

6.30 - 8.50

= 2 hrs 20 mins

2 hrs 20 mins

.....

(2)

Jan watches this film and then catches a bus home.

The bus leaves the bus stop 18 minutes after the film ends.
The bus takes 24 minutes to get to Jan's home.

(*b*) Will Jan be home before 2130? < 9.30pm
You must show all your working.

18 + 24 = 42 mins

6.50pm + 42 mins

= 9.32 pm

No she won't arrive before 9.30pm.

(3)

Arrives 2 minutes after 9.30pm **(Total 5 marks)**

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3. Harry puts sweets into bags.
He then puts the bags of sweets into boxes.

Harry puts 25 sweets into each bag.
He then puts up to 60 bags of sweets into each box.

Harry has 4200 sweets.

Work out the least number of boxes he needs.

4200 ÷ 25 = 168 bags

168 ÷ 60 = 2.8 boxes needed.

can't have 0.8 of a box

3

.....

(Total 3 marks)

4. Here is an equilateral triangle.

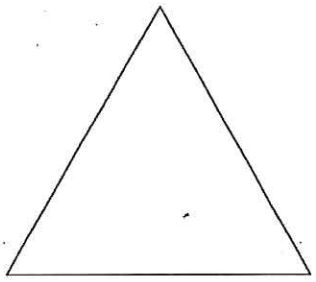


Diagram **NOT** accurately drawn

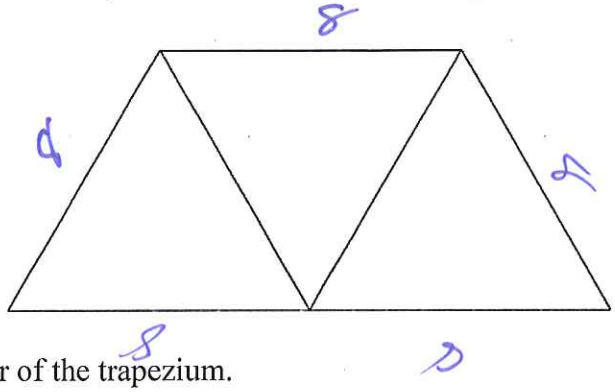
P = 24

sides = 24 ÷ 3

= 8cm

The equilateral triangle has a perimeter of 24 cm.

Three of these equilateral triangles are used to make this trapezium.



Work out the perimeter of the trapezium.

8 x 5 = 40 cm

40 ..... cm

(Total 3 marks)

5. 100 people played sport on Sunday.
Each person played only one sport.

The two-way table shows some information about which sport they played.

	Football	Tennis	Rugby	Netball	Total
Men	24	12	10	8	54
Women	20	9	6	11	46
Total	44	21	16	19	100

(a) Complete the two-way table.

(3)

(b) How many women played football?

20

.....

(1)

(c) How many people did **not** play rugby?

100 - 16 =

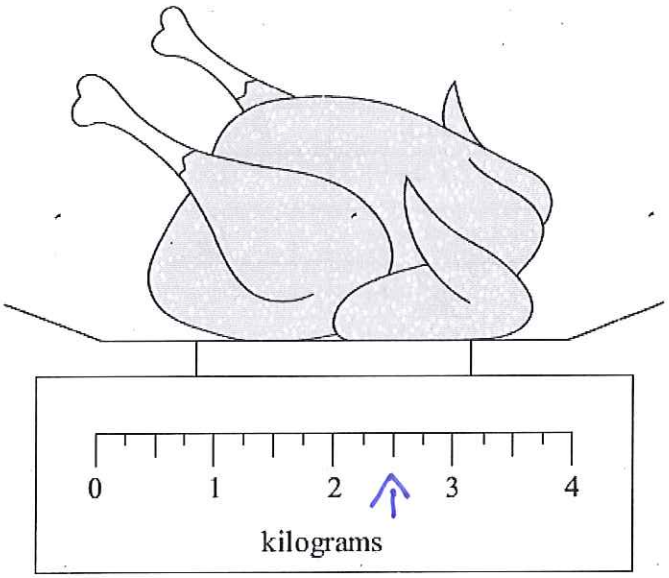
84

.....

(1)

(Total 5 marks)

6. Here is a chicken on some scales.



The chicken weighs 2.5 kilograms.

(i) On the scales, mark with an arrow the weight 2.5 kilograms

(ii) Change 2.5 kilograms to grams.

2500 ..... grams

(2)

Hafiz is going to cook the chicken.

The weight of the chicken is 2.5 kilograms.
The chicken has to be cooked for 20 minutes for each 0.5 kilograms of its weight.
He wants the chicken to finish cooking at 1 pm.

(b) At what time should Hafiz start cooking the chicken?

$\frac{2.5}{0.5} = 5$

20 mins x 5 = 100 mins

1pm − 100 mins

= 11.20am

11:20 am .....

(3)

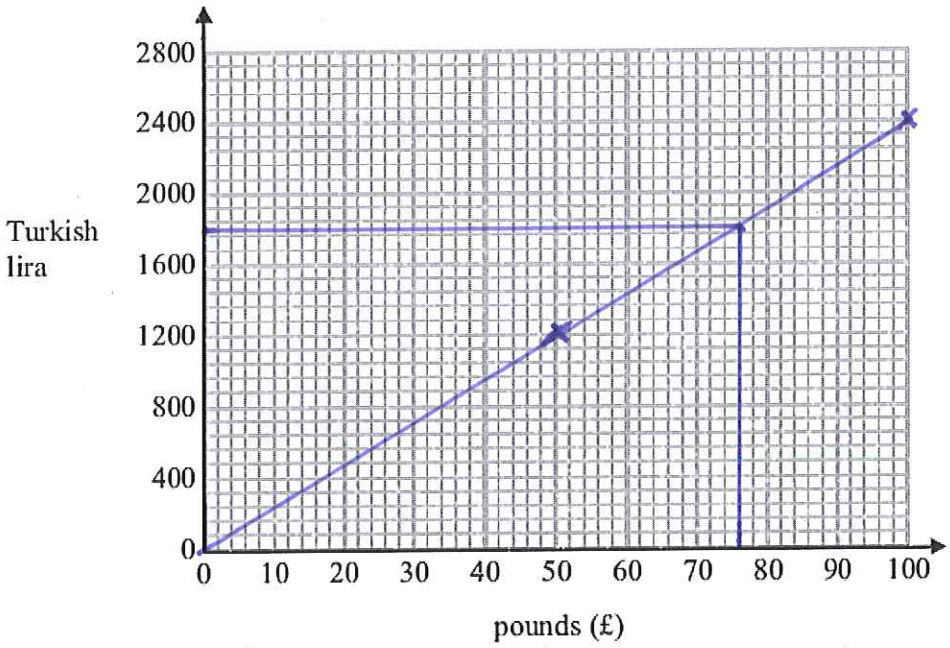
(Total 5 marks)

7. Mary goes on holiday to Turkey.
Mary needs to change between pounds (£) and Turkish lira.

∴ £10 = 240
£100 = 2400
50 = 1200

£1 = 24 Turkish lira

(a) On the grid, draw a conversion graph Mary can use to change between pounds and Turkish lira.



(2)

Mary changes 1800 Turkish lira into pounds.

(b) Use your graph to change 1800 Turkish lira into pounds.

~ 73 - 77

£ 75

(2)

(Total 4 marks)

8. The cost of living index has increased by 30% from the year 2004 to the year 2014.

In 2004, Shola's wage was £340 a week.
In 2014, his wage was £450 a week.

Show that Shola's wage has increased by more than the increase in the cost of living index.

130% of 340

= 1.3 x 340 = £442

(OR)

450 − 340 = 110

$\frac{110}{340} \times 100 = 32.35\%$.

Shola's wage increased by 32.35%.
from 2004 - 2014.

(Total 3 marks)

9. The diagram shows a solid prism.

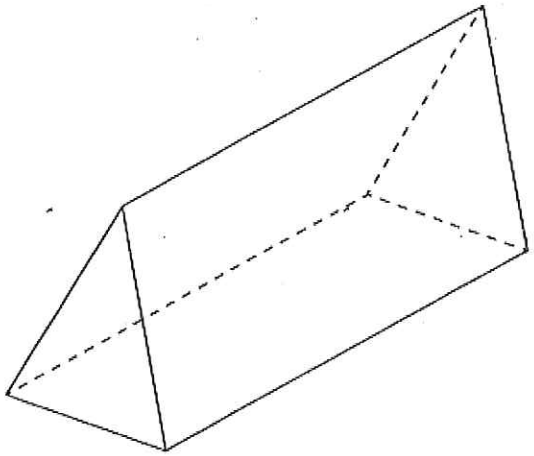


Diagram **NOT** accurately drawn

Write down

(i) the number of vertices

6

.....

(ii) the number of faces

5

.....

(iii) the number of edges

9

.....

(Total 3 marks)

---

10. Vicky counts the number of birds in her garden at 8 am on each of 10 days.

5 3 3 2 0 2 4 2 4 15

(*a*) Write down the mode.

most common 2

.....

(1)

(*b*) Work out the mean.

2 + 2 + 2 + 3 + 3 + 4 + 4 + 5 + 15 = 40

$\frac{40}{10} = 4$

4

.....

(2)

Vicky counts the number of birds in her garden at 5 p.m. on each of 20 days.
She records the information in a frequency table.

Number of birds	Frequency	
0	3	0
1	2	2
2	3	6
3	4	12
4	5	20
5	3	15

(*c*) Work out the total number of birds Vicky records in the frequency table.

2 + 6 + 12 + 20 + 15

55

.....

(2)

(Total 5 marks)

11. Here is a number machine.

(*a*) Work out the output when the input is 5.

5 × 4 = 20 + 3 = 23

23

(1)

(*b*) Work out the input when the output is –5.

−5 − 3 = −8 ÷ 4 = −2

−2

(2)

The input is x and the output is y.

(*c*) Write y in terms of x.

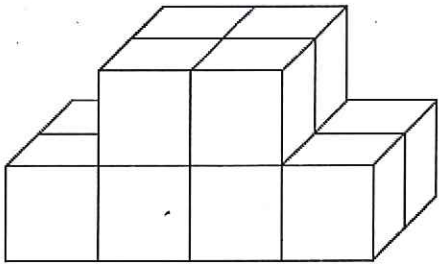
$y = 4x + 3$

$y = 4x + 3$

(2)

(Total 5 marks)

12. Here is a solid prism made from centimetre cubes.



(a) Find the volume of the solid prism.

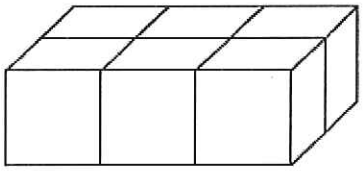
12

..... cm^3

(1)

A cuboid is also made from centimetre cubes.
The diagram shows the bottom layer of cubes in the cuboid.

x = height



$\leftarrow 2 \times 3 \times x = 96$

The volume of the cuboid is 96 cm^3.

(b) Find the height of the cuboid.

$96 = 6x$

$x = 16$

16

..... cm

(2)

(Total 3 marks)

13. There were 60 votes in an election.

There were two candidates, Jared and Beth.
Jared had 18 more votes than Beth.
How many votes did Beth get?

Beth x
Jared $x+18$.

$60 = x + x + 18$

$60 = 2x + 18$

$42 = 2x$

$21 = x$

21

.....

(Total 2 marks)

14. Bill has some models of meerkats.

He has models of meerkat children and models of meerkat adults.

Bill has twice as many models of meerkat children as models of meerkat adults.

He has a total of 30 models.
Each model meerkat child has a value of £2.80

Bill's models have a total value of £98.00
Each model meerkat adult has the same value.

Work out the value of a model of a meerkat adult.

meerkat

2x
x

30 = 3x
x = 10
adults = 10 children = 20.

2.80 for child meerkat models.

280 £56
× 20
5600

Adult total = 98 − 56 = 42.

$\frac{42}{10}$ = £4.20

£ 4.20

(Total 4 marks)

15. Sue is driving home from her friend's house.

Sue drives

10 miles from her friend's house to the motorway
240 miles on the motorway
5 miles from the motorway to her home 10 + 240 + 5 = 255 miles

Sue

takes 20 minutes to drive from her friend's house to the motorway 10 miles in 20 mins
drives at an average speed of 60 mph on the motorway
takes 25 minutes to drive from the motorway to her home

Sue stops for a 30 minute rest on her drive home.

Sue leaves her friend's house at 9.00 am.

What time does Sue get home?
You must show all your working.

Total distance = 255 miles.
20 mins to drive 10 miles to motorway.
$10 \div \frac{1}{3}$ hr = 30 mph.
Motorway = 60 mph, 240 miles.
$\frac{240}{60}$ = 4 hrs.
Total time to get home = 20 mins + 4 hrs + 30 mins + 25 mins
= 5 hrs 15 mins.

9 am + 5 ¼ hrs
= 2.15 pm

2.15 pm

(Total 3 marks)

16. Lisa wants to buy some cola for a party.

She is also going to buy some burgers and some buns.
Cola, burgers and buns are all sold in packs.

There are

8 cans of cola in a pack
12 burgers in a pack
10 buns in a pack

A pack of cola costs £3.95
A pack of burgers costs £4.95
A pack of buns costs £1.95

Lisa is going to buy the same number of cans of cola, and burgers, and buns.
Lisa sees this special offer for cola.

Work out the cheapest total price Lisa pays for the cola, the burgers, and the buns.
You must show all your working.

£ 112.40

(Total 6 marks)

$1\,km^2 = 1000\,m \times 1000\,m$

17. Change 4.5 km^2 to m^2.

$\therefore 4.5 \times 1000 \times 1000$

$= 4,500,000$

4,500,000 ..... m^2

(Total 2 marks)

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18. Carol and Delia share some money in the ratio 3 : 8
Delia gets £325 more than Carol gets.

Work out how much Carol gets.

$8 - 3 = 5$

Delia gets 5 parts more than Carol gets.

5 parts = £325 $\Rightarrow \therefore$ 1 part = $\frac{325}{5} = £65$

Carol = 3×65 = £195

£ 195

(Total 2 marks)

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19. Viv wants to invest £2000 for 2 years in the same bank.

The International Bank	**The Friendly Bank**
Compound Interest	Compound Interest
4% for the first year 1% for each extra year	5% for the first year 0.5% for each extra year

At the end of 2 years, Viv wants to have as much money as possible.

Which bank should she invest her £2000 in?

TIB = $2000 \times 1.04 = 2080$

$2080 \times 1.05 = £2184$

TFB = $2000 \times 1.05 = £2100$

$2100 \times 1.055 = £2215.50$

more money

Viv should invest in

The Friendly Bank

(Total 4 marks)

let petrol = p oil = o

20. One day Sadie and Gohil both buy petrol and oil from the same petrol station.

Sadie buys 30 litres of petrol and 4 litres of oil. (30p, 4×o)
Sadie pays a total £46.00

Gohil buys 24 litres of petrol and 8 litres of oil. (24×p, 8×o)
Gohil pays a total of £45.20

Find the cost of one litre of petrol and the cost of one litre of oil.

Solve using Algebra.

Sadie – $30p + 4o = £46.00$

Gohil – $24p + 8o = £45.20$

Make one pair of unknowns the same.

Sadie ×2 = $60p + \underline{8o} = £92.00$

Gohil = $24p + \underline{8o} = £45.20$

Can eliminate $\underline{8o_{il}}$

$= 36p = 92 - 45.20$

$36p = 46.80$

Petrol ✓

$\therefore p = \frac{46.80}{36} = £1.30$ – Now sub.

$-24 \times 1.30 + 8o = 45.20$

$31.20 + 8o = 45.20$

$8o = £14 \div 8$

$Oil = £1.75$

Petrol £ 1.30

Oil £ 1.75

(Total 5 marks)

21. In a sale the normal price of a book is reduced by 10%.
The sale price of the book is £4.86

i.e. 90% = 0.9.

Calculate the normal price of the book.

£4.86 ÷ 0.9 = £5.40

(OR)

$\frac{4.86}{90} \times 100 = 5.40$

£ 5.40

(Total 3 marks)

22. The diagram shows 3 sides of a regular polygon.

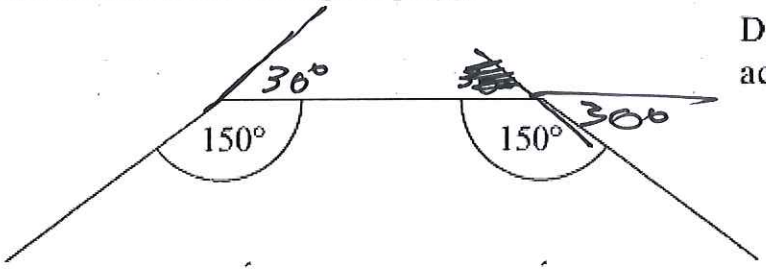

Diagram **NOT** accurately drawn

Each interior angle of the regular polygon is 150°.
Work out the number of sides of the regular polygon.

Exterior Angle = 180° − 150 = 30°

All exterior Angles add up to 360°.

$\frac{360°}{30}$ = 12 sides.

ALSO Angles of a shape = 180 × (n − 2)
(Interior Angle Sums)

∴ 180 × (12 − 2) = 1800°

$\frac{1800}{12}$ = 150° ✓

works!

12

(Total 3 marks)

TOTAL FOR PAPER IS 80 MARKS