

# GCSE Mathematics

## Practice Tests: Set 5

### Paper 2F (Calculator)

Time: 1 hour 30 minutes

MR. LEWIS

Solutions

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)

2. A film starts at 1830.  
The film ends at 2050.

(a) How long does the film last?

18:30 - 19:00 = 30 mins  
19:00 - 20:00 = 60 mins  
20:00 - 20:50 = 50 mins  
= 140 minutes  
2 hours 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?  
You must show all your working.

20:50 + 18 mins  $\Rightarrow$  21:08  
21:08 + 24 mins  $\Rightarrow$  21:32  
21:32 is after 21:30  
So JAN will NOT be home before 21:30  
(3)  
(Total 5 marks)

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.

$$25 \times 60 = 1500 \checkmark$$

$$4200 \div 1500 = 2.8 \checkmark$$

So will need 3 boxes.

✓  
3

.....  
(Total 3 marks)

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4. Here is an equilateral triangle.

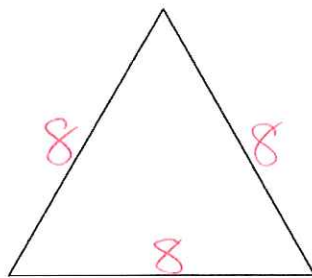
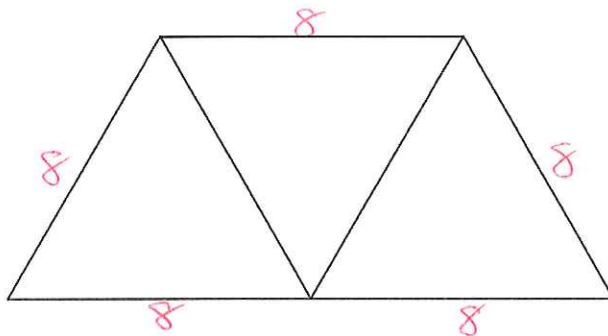


Diagram **NOT**  
accurately drawn

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.

$$24 \div 3 = 8 \text{ cm each side}$$

$$5 \times 8$$

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.

All correct = 3 marks.

4, 5, 6 = 2 marks

2 or 3 = 1 mark.

(3)

- (b) How many women played football?

20

(1)

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

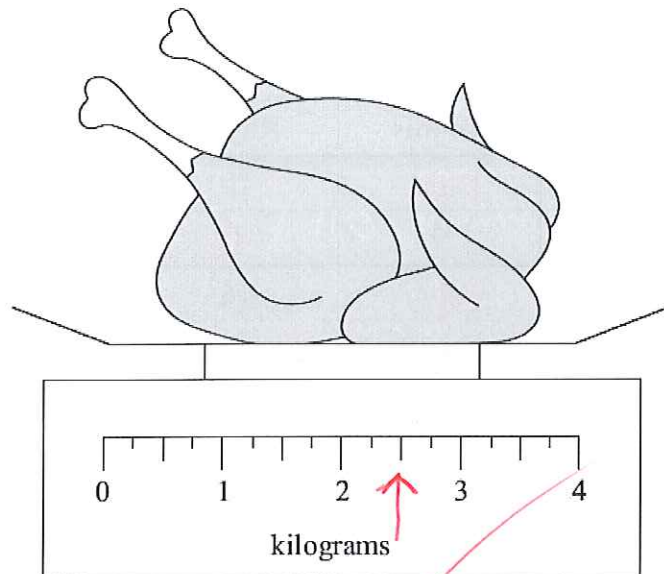
100 - 16

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.

$\times 1000$

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?

$\times 5$   $0.5 \text{ kg} = 20 \text{ mins}$   $2 \times 5$   
 $2.5 \text{ kg} = 100 \text{ mins}$  ✓  
 $= 60 + 40$   
 $= 1 \text{ hr } 40 \text{ mins.}$  ✓

$1 \text{ pm} - 1 \text{ hr} = 12.00 \text{ pm.}$

$12.00 \text{ pm} - 40 \text{ mins} = 11.20 \text{ AM}$

11:20 AM  
(3)

(Total 5 marks)

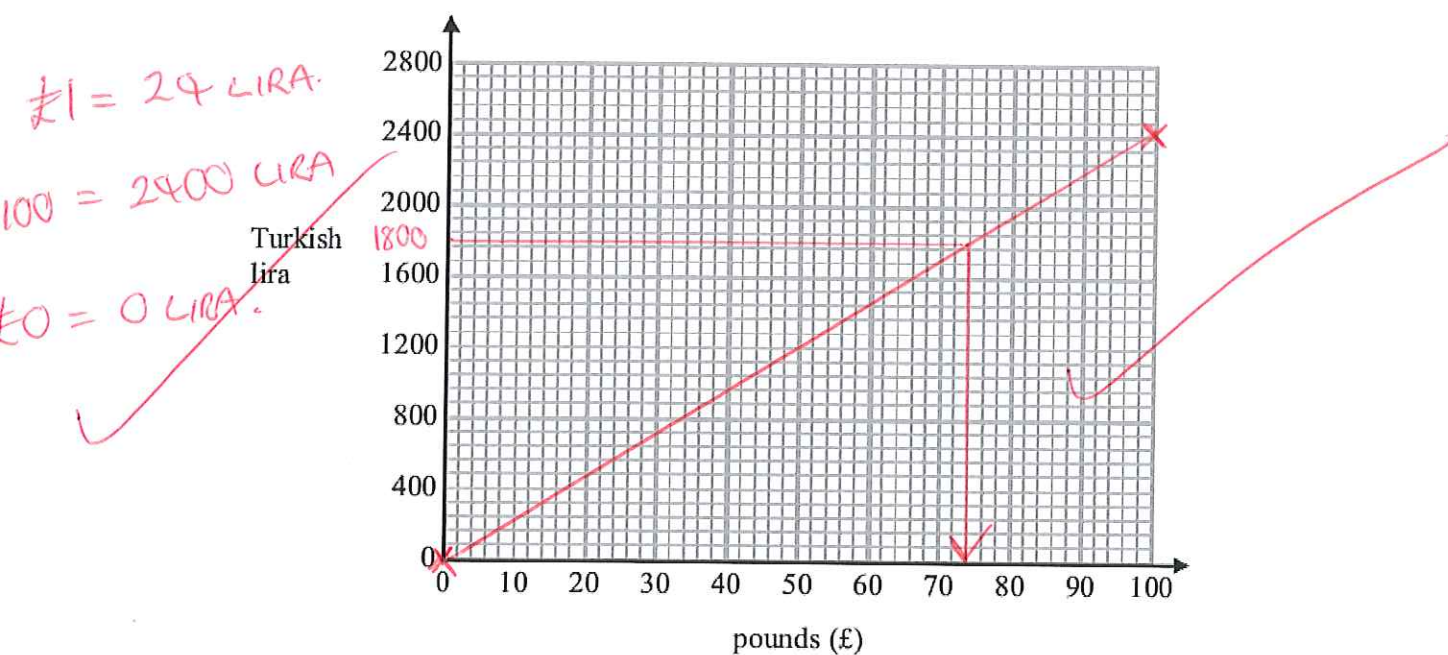


Mary goes on holiday to Turkey.

Mary needs to change between pounds (£) and Turkish lira.

$$£1 = 24 \text{ Turkish lira}$$

- (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.

LINE DRAWN AT 1800 LIRA  
TO conversion graph ✓

£..... 74 ✓

(2)

(Accept 73-77) (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.

$$£450 - £340 = £110 \text{ increase.}$$

$$\text{percentage increase} = \frac{\text{increase}}{\text{original}} \times 100$$

$$= \frac{110}{340} \times 100$$

$$= 32.35\ldots\%$$

which is more than 30%.

(Total 3 marks)

or.

£340

$$10\% = £34.$$

$$30\% = £102$$

$$\begin{array}{r} £340 \\ + £102. \\ \hline \end{array}$$

$$\begin{array}{r} £442 \\ \hline \end{array}$$

£450 is more than £442.



The diagram shows a solid prism.

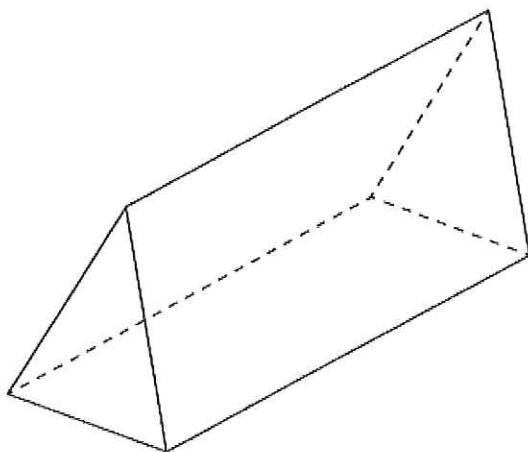


Diagram **NOT**  
accurately drawn

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.

(the most)

..... 2 ✓  
(1)

- (b) Work out the mean.

$$\frac{5+3+3+2+0+2+4+2+4+15}{10}$$

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

..... 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	X	3	= 0
1	X	2	= 2
2	X	3	= 6
3	X	4	= 12
4	X	5	= 20
5	X	3	= 15

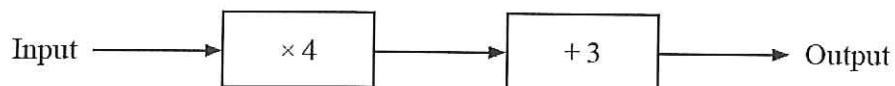
- (c) Work out the total number of birds Vicky records in the frequency table.

$$0+2+6+12+20+15$$

..... 55 ✓  
(2)

(Total 5 marks)

Here is a number machine.



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

$$5 \longrightarrow 20 \longrightarrow 23$$

$$\begin{array}{r} 23 \\ \hline \end{array} \quad (1)$$

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

$$? \longleftarrow \boxed{\div 4} \xrightarrow{-8} \boxed{-3} \longleftarrow -5$$

$$\begin{array}{r} -2 \\ \hline \end{array} \quad (2)$$

The input is  $x$  and the output is  $y$ .

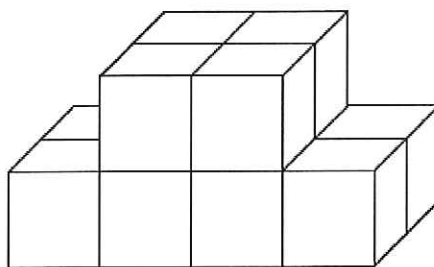
(c) Write  $y$  in terms of  $x$ .

$$x \longrightarrow \boxed{\times 4} \xrightarrow{4x} \boxed{+3} \longrightarrow y$$

$$\begin{array}{r} y = 4x + 3 \\ \hline \end{array} \quad (2)$$

(Total 5 marks)

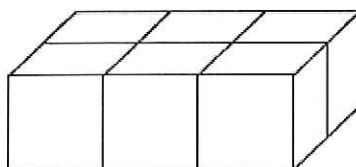
12. Here is a solid prism made from centimetre cubes.



- (a) Find the volume of the solid prism.

..... 12  $\text{cm}^3$   
(1)

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



The volume of the cuboid is  $96 \text{ cm}^3$ .

- (b) Find the height of the cuboid.

$$96 \div 6$$

..... 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?

$$60 - 18 = 42$$

$$42 \div 2 = 21$$

<u>JARED</u>	<u>BETH</u>
21	21
+ 18	
<u>39</u>	

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

✓ CHILDREN : ADULTS  
 $2 : 1 = 3 \text{ parts.}$   
 $30 \div 3 = 10$   
↓  
20 children      10 adults.

$20 \times £2.80$   
 $= £56.$  ✓

$£98 - £56 = £42$  ✓

$£42 \div 10 =$

£ 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

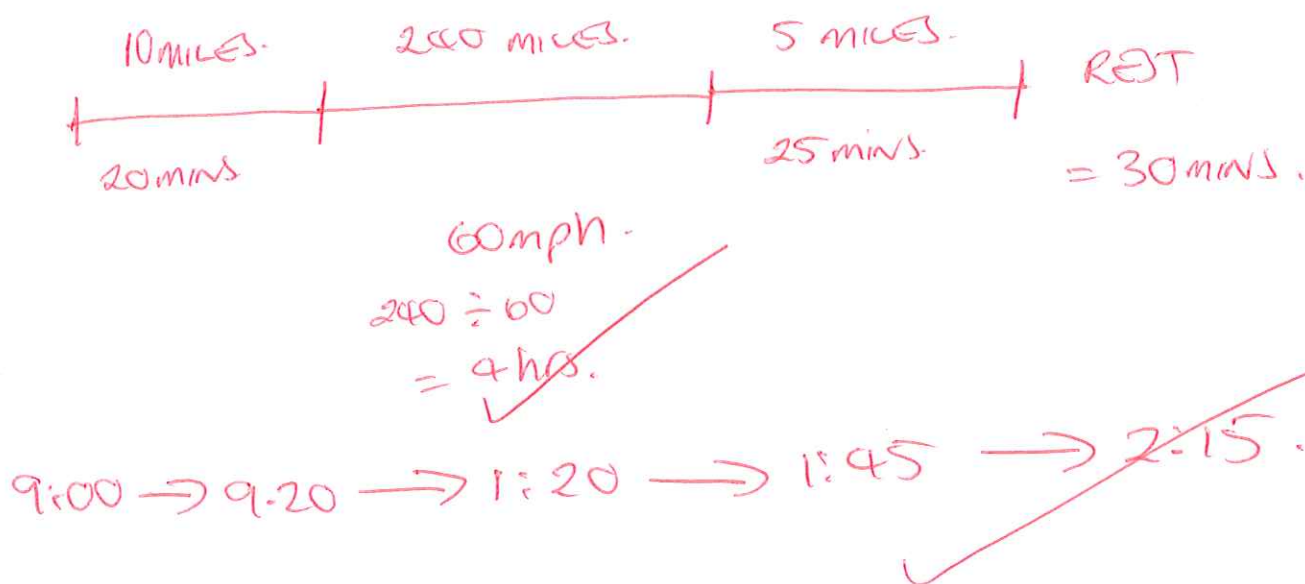
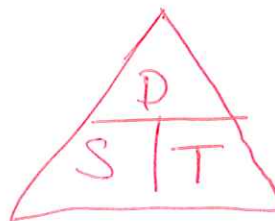
Sue

takes 20 minutes to drive from her friend's house to the motorway  
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.



~~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

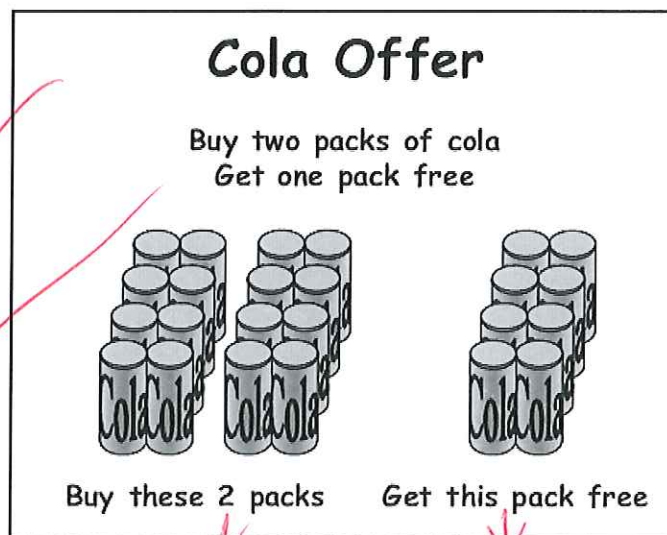
A pack of cola costs £3.95

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.

COLA  
 $120 \div 8 = 15 \text{ packs}$   
 Buys 10, get 5 free  
 $\pounds 3.95 \times 10 = \pounds 39.50$



BURGERS  
 $120 \div 12 = 10 \text{ packs}$   
 $\pounds 4.95 \times 10 = \pounds 49.50$

BUNS  
 $120 \div 10 = 12 \text{ packs}$   
 $\pounds 1.95 \times 12 = \pounds 23.40$

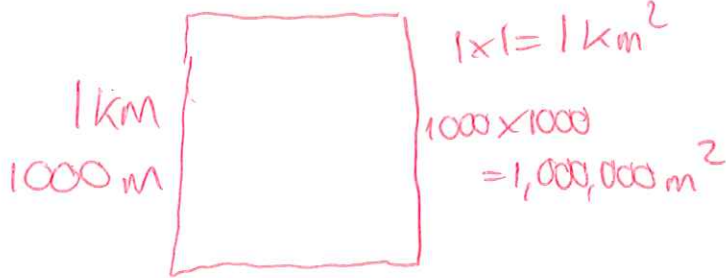
Work out the cheapest total price Lisa pays for the cola, the burgers, and the buns.  
You must show all your working.

$\pounds 39.50 + \pounds 49.50 + \pounds 23.40 =$

£ 112.40

(Total 6 marks)

17. Change  $4.5 \text{ km}^2$  to  $\text{m}^2$ .



$4.5 \times 1,000,000.$

~~$4,500,000$~~   $\text{m}^2$

(Total 2 marks)

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.

CAROL : DELIA

3 : 8



5 parts = £325

1 part = £65

$\text{CAROL} = 3 \times 65 =$

£ 195

(Total 2 marks)

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

**The International Bank**

Compound Interest

4% for the first year  
1% for each extra year

**The Friendly Bank**

Compound Interest

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?

$$2000 \times 1.04 = \cancel{2080} \checkmark$$
$$2080 \times 1.01 = \cancel{2100.80} \checkmark$$

$$2000 \times 1.05 = \cancel{2100}$$
$$2100 \times 1.005 = \cancel{2110.50}$$

↑  
MOST.

INVEST IN  
FRIENDLY BANK.

AS  $\cancel{2110.50}$  IS MORE THAN  
 $\cancel{2100.80}$

(Total 4 marks)



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.  
Sadie pays a total £46.00

Gohil buys 24 litres of petrol and 8 litres of oil.  
Gohil pays a total of £45.20

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

petrol =  $x$   
oil =  $y$

$$30x + 4y = 46 \quad (1) \times 2$$

$$24x + 8y = 45.20 \quad (2)$$

$$60x + 8y = 92 \quad (3)$$

$$(3) - (2) \quad 36x = 46.80$$

$$x = 1.3$$

sub in (1)

$$39 + 4y = 46$$

$$4y = 7$$

$$y = 1.75$$

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

Calculate the normal price of the book.

$$100\% - 10\% = 90\%$$

$$90\% = £4.86$$

$$\div 90$$

$$\div 90$$

$$1\% = £0.054$$

$$\times 100$$

$$\times 100$$

$$100\% = £5.40$$

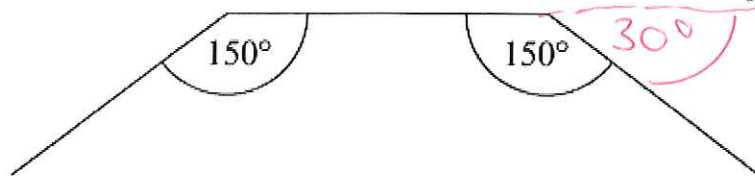
£.....

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  $150^\circ$ .  
Work out the number of sides of the regular polygon.

$$\begin{aligned}\text{exterior angle} &= 180 - 150 \\ &= 30^\circ.\end{aligned}$$

$$\text{Sum of exterior angles} = 360^\circ$$

$$360 \div 30 =$$

12

(Total 3 marks)

TOTAL FOR PAPER IS 80 MARKS

