SECONDARY SCHOOL ANNUAL EXAMINATIONS 2006

Educational Assessment Unit – Education Division

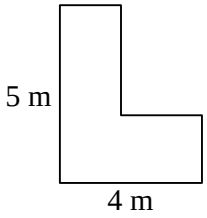
FORM 3 **MATHEMATICS (NON-CALCULATOR PAPER)** **TIME: 10 minutes**

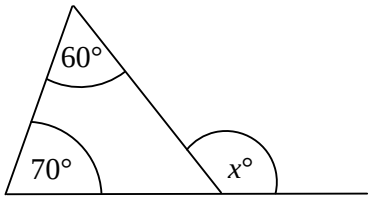
Name: _____ **Class:_____**

Mark

INSTRUCTIONS TO CANDIDATES

- **Answer all questions. There are 10 questions to answer.**
- **Each question carries 1 mark.**
- **Calculators and protractors are not allowed.**
- **You are not required to show your working. However space for working is provided if you need it.**

Questions	Space for working if required
1. Find the value of **7 + 6 × 3 – 5**. **Ans:**_____	
2. An approximate answer for $\sqrt{\mathbf{83}}$ is (a) 8 (b) 7 (c) 9 (d) 10 **Ans:** _____	
3. Write **62.5**% as a decimal. **Ans:** _____	
4. Mr Borg earns twice as much as his wife. As a ratio, we write this: **Mr Borg's salary : Mrs Borg's salary** = ____:____	
5. What is the perimeter of the boundary wall of a field whose shape is as follows?  **Ans:**_____	
6. Which of these shapes must have all of its sides equal? (a) rectangle (b) parallelogram (c) rhombus (d) kite. **Ans:**_____	

7. Find the value of x.  **Ans:_____**	
8. Simplify: $4x + 3 - 2x - 4$ **Ans:_____**	
9. A book has 60 pages. There is a picture on 36 of the pages. I open the book at random. What is the probability of opening the book at a page which has a picture? **Ans:_____**	
10. Mary is using **LOGO**. She types these commands: **PD REPEAT 360 [FD 1 RT 1]** Mary will see: (a) rhombus (b) circle (c) kite (d) parallelogram. **Ans:_____**	

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2006

Educational Assessment Unit – Education Division

FORM 3 **MATHEMATICS (Main Paper)** **TIME: 1 h 50 min**

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total Main	Non Calculator	Global Mark
Mark																		

DO NOT WRITE ABOVE THIS LINE

Name :_____ **Class :**_____

CALCULATORS ARE ALLOWED

ANSWER ALL QUESTIONS.

1. Use your calculator to find the exact value of:

(a) $\dfrac{6.2}{(3.1\times 2.5)}$

Ans: _____

(b) $\sqrt{3969}$

Ans: _____

(c) $\sqrt[6]{4096}$

Ans: _____

(d) 14^4

Ans: _____

(4 marks)

2. (a) The length of a swimming pool is 50 m. Duncan swims 42 lengths.
How far, in kilometres, does he swim?

Ans: _____ km

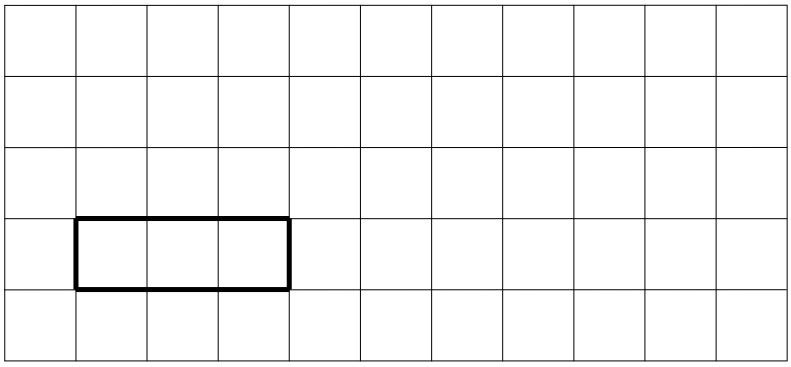
(b) Stephanie has two packets of biscuits. She eats half a packet, and gives ¾ of the other packet to her brother.

What fraction of a packet has she left?

Ans: _____

(4 marks)

3. (a) On the grid below draw the image of the rectangle under an enlargement scale factor 2.

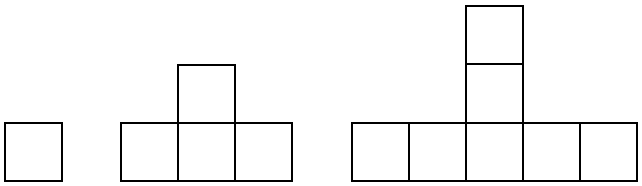


(b) Calculate the **area** of the enlarged rectangle.

Ans: _____ square units

(4 marks)

4. (a) Draw the next pattern:



(b) Here are two sequences:

A: The first term is **10**. The rule of the sequence is **add 3**.

B: The first term is **25**. The rule of the sequence is **subtract 5**.

Write the first four terms of each sequence.

A: _____ _____ _____ _____

B: _____ _____ _____ _____

(4 marks)

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5. Mary is twice as old as her sister Alice. Let Alice be x years old.
(a) Write Mary's age in terms of x.

Ans.:_____ years

Mary and her sister together are 18 years old.
(b) Write and solve an equation to find how old Alice is.

Ans.:_____ years

(4 marks)

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6. The height of a group of nine students was measured. Here are the results in centimetres:

146 151 149 153 151 155 147 151 147.

(a) What is the **range** of these measurements?

Ans.:_____ cm

(b) Work out the **mean height** of this group of students.

Ans.:_____ cm

(c) What is the **mode** of this group?

Ans.:_____ cm

(6 marks)

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7. In a car park there are 20 cars.
There are 10 white cars, 6 red cars and the rest are blue.

A car leaves the car park. Write down the probability that this car is:

(a) a white car

Ans: _____

(b) a blue car

Ans: _____

(c) a yellow car

Ans: _____

(6 marks)

8. A spreadsheet is used to find the area of several parallelograms.

	A	B	C	D
1	**Parallelogram**	**Base (cm)**	**Height (cm)**	**Area (cm^2)**
2	Number 1	5	3	
3	Number 2	6		24
4	Number 3		5	35
5				

(a) What formula should be entered in cell **D2** to calculate the **area** of **Parallelogram** Number 1?

Ans: _____

(b) What formula is entered in cell **C3** to calculate the **height** of **Parallelogram** Number 2?

Ans: _____

(c) What formula is entered in cell **B4** to calculate the **base** of **Parallelogram** Number 3?

Ans: _____

(d) On the spreadsheet above, fill in the missing values in cells **D2, C3, B4** .

(6 marks)

9. (a) Draw a circle of radius 4 cm.
(b) Use ruler and compasses only to construct an **equilateral triangle** whose vertices lie on the circumference of the circle you have drawn.
(c) Measure one of the sides of the equilateral triangle.

Ans: _____ cm

(6 marks)

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10. (a) The world's longest river is 6 6 95 kilometres long.
Write this number in **standard form**.

Ans: _____km

(b) A football stadium can hold 1.15×10^5 people.
Write this as an **ordinary number.**

Ans: _____

(c) Write $5^5 \times 5^4 \div 5^2$ as **a single number in index form**:

Ans: _____

(d) Find the value of:

(i) 2^{-3} = _____

(ii) 7^0 = _____

(6 marks)

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11. In a youth club there are 66 members. There are 30 males and the rest are females.
(a) What is the ratio, **in its simplest form**, of male to female members?

Ans: _____ : _____

(b) In a family, Mr and Mrs Mifsud both earn a salary.
Together they earn Lm240 a week.
The ratio of their salaries is 3 : 2 respectively.
What is the weekly salary of **Mr** and **Mrs Mifsud**?

Mr Mifsud Lm_____

Mrs Mifsud Lm_____

(c) I buy **12 metres** of rope for **Lm4.80**.
How much do I pay if I buy **7 metres** of the rope?

Ans: Lm_____

(8 marks)

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12. (a) A bird flies 120 metres in 1 minute.
What is its **speed in m/s**?

Ans: _____ m/s

(b) At a steady speed, a motorboat travels 95 kilometres in 5 hours.
What is its **speed in km/h**?

Ans: _____ km

(c) Tony is driving at 80 km/h.
How **far** does he travel in 1½ hours?

Ans: _____ km/h

(d) Marica's aunt lives 5 km away from Marica's house.
Marica rides her bike at 20 km/h to visit her aunt. How **long** does it take her to go to her aunt's house?

Ans: _____ minutes

(8 marks)

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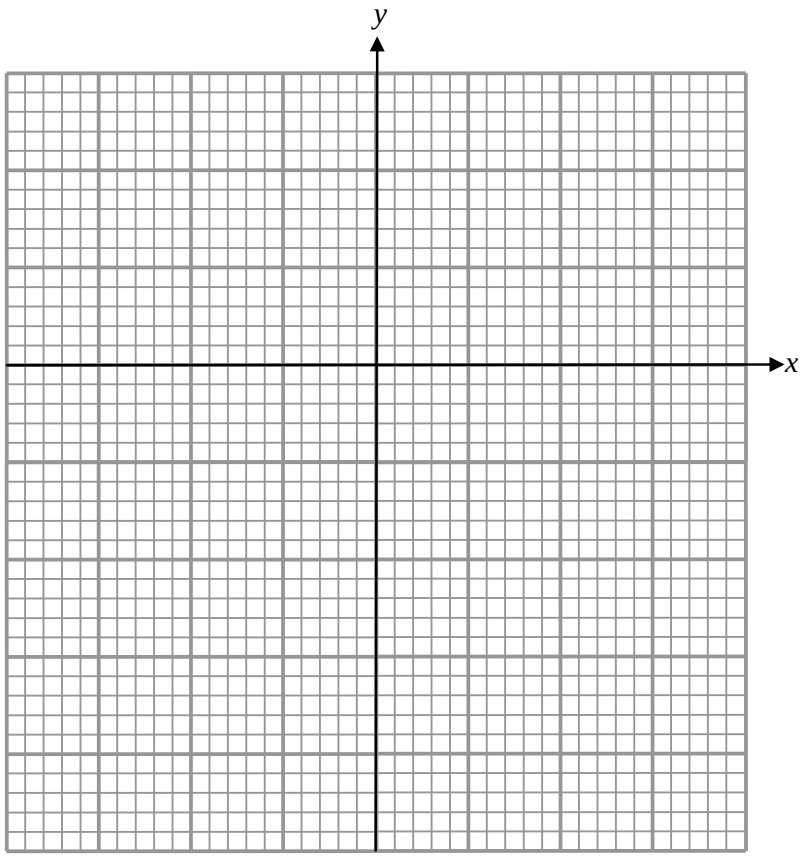
13. (a) Complete the table of values for the graph:

$$y = 2x - 1$$

x	-2	0	2
y			

(b) Plot the straight-line graph $y = 2x - 1$.



(c) From your graph,

(i) find the value of y when $x = 1$,

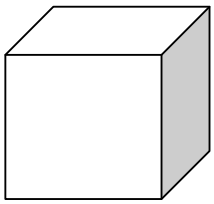
Ans: $y =$ _____

(ii) find the value of x when $y = 0$.

Ans: $x =$ _____

(8 marks)

14. (a) The **volume** of a cube is 10.648 cm^3. What is the **length** of one side of the cube?



Ans: _____ cm

(b) The circumference of a circle is 12.56 cm. What is the length of a **diameter**?
(Give your answer correct to the nearest centimetre.)

Ans: _____ cm

(c) **Expand:**

$$4x(2x - 3)$$

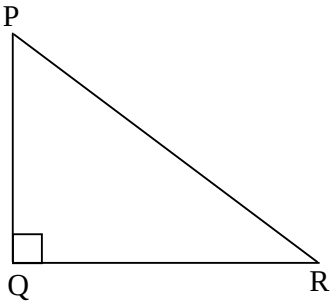
Ans: _____

(d) Find the value of $a^2 - 2b$ when $a = 3$ and $b = -2$.

Ans: _____

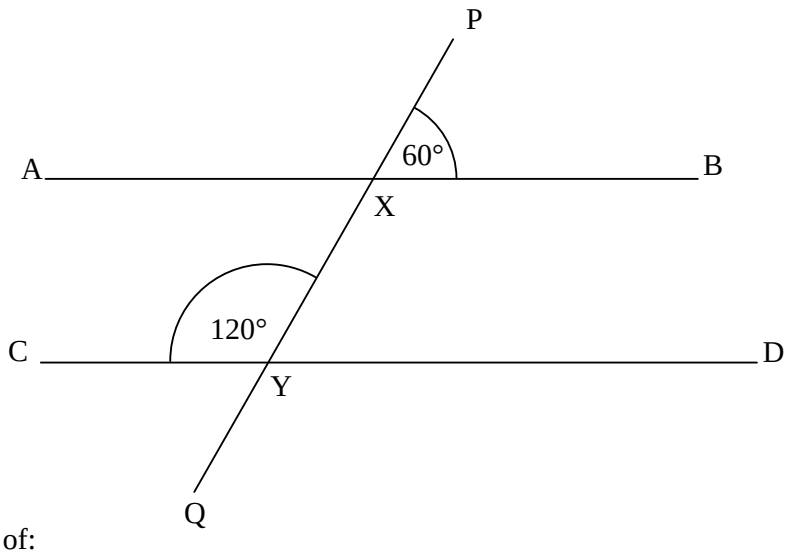
(8 marks)

15. PQR is a right-angled triangle in which PQ = 3.2 cm and QR = 4.3 cm.
(a) Find the length of side PR correct to **3 significant figures**.



Ans: _____ cm

(b) The pair of lines **AB** and **CD** are cut by the line **PQ** at **X** and **Y**.
Angle **CYX** = 120° and angle **BXP** = 60°.



Find the size of:

(i) angle **AXP**

Ans: _____

(ii) angle **BXY**

Ans: _____

(iii) angle **DYX**

Ans: _____

(iv) What can I say about the lines **AB** and **CD**?

AB and **CD** are _____

(8 marks)

END OF PAPER