SECONDARY SCHOOL ANNUAL EXAMINATIONS - 2003

Educational Assessment Unit - Education Division

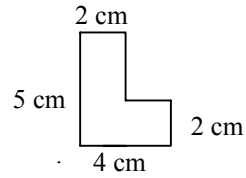
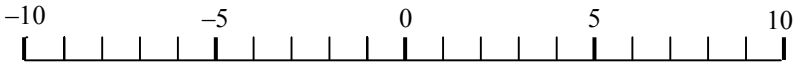
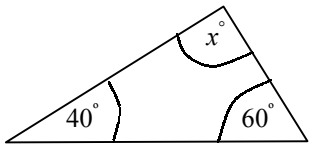
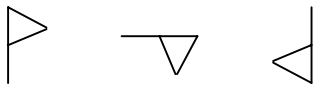
FORM 3 **MATHEMATICS (NON CALCULATOR PAPER)** **TIME: 10 min.**

Name _____ Class _____

Mark

INSTRUCTIONS TO CANDIDATES:

- ANSWER ALL QUESTIONS. THERE ARE 10 QUESTIONS TO ANSWER.
- EACH QUESTION CARRIES 1 MARK.
- CALCULATORS, RULERS, PROTRACTORS AND OTHER MATHEMATICAL INSTRUMENTS ARE NOT ALLOWED.
- ON YOUR DESK YOU SHOULD HAVE NOTHING EXCEPT FOR PEN, PENCIL AND THE EXAMINATION PAPER.
- TO ANSWER QUESTIONS INVOLVING NUMERICAL CALCULATIONS YOU ARE ADVISED TO CHOOSE AND USE THE MORE EFFICIENT TECHNIQUES. (MENTAL OR PAPER-AND-PENCIL).
- YOU ARE NOT REQUIRED TO SHOW YOUR WORKING. HOWEVER SPACE FOR WORKING IS PROVIDED IF YOU NEED IT.

	QUESTION	SPACE FOR WORKING IF REQUIRED
1.	Work out: **$2\frac{1}{2} + 3\frac{3}{4}$.** **Ans.** _____	
2.	Write 55.193 correct to 3 significant figures. **Ans.** _____	
3.	What is the perimeter of this shape?  **Ans.** _____	
4.	Work out, using the number line: $-5 + 6 - 4$.  **Ans.** _____	
5.	The value of $\sqrt{38}$ is approximately (a) 3 (b) 10 (c) 6 (d) 4 **Ans.** _____	
6.	Mandy is using **LOGO**. What will she see when she runs the following programme? **PD** **FD 100 BK 100** **RT 90 FD 50**	
7.	Write down the value of $x°$.  **Ans.** _____	
8.	Simplify: $4a + 3b - 2a - b$ **Ans.** _____	
9.	Draw the diagram to show the next position of the flag. 	
10.	4.8×10^{-1} is equal to (a) 48 (b) 0.48 (c) 480 (d) 4.8 **Ans.** _____	

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2003

Educational Assessment Unit - Education Division

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

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 BUT ALL NECESSARY WORKING MUST BE SHOWN

ANSWER ALL QUESTIONS.

1. (a) Work out:

$$(2.5 \times 3.6) + (4.8 \times 2.4)$$

(b) Work out:

$$\frac{5}{8} + \frac{1}{4} - \frac{1}{2}$$

(4 marks)

2. (a) Joe, Thomas and Peter divided the profit of their enterprise in the ratio 5 : 4 : 3 respectively. They had Lm1200 profit. How much did each get?

(b) Simplify the ratio Lm9 : Lm27.

(4 marks)

3. (a) An athlete runs at 8 m/s. How long does he take to cover 100 m?

(b) A driver goes from Zejtun to Valletta driving his car at a speed of 60 km/h. He takes 20 minutes to arrive. What is the **distance** driven?

(4 marks)

4. (a) Write as a **single number in index form**:

(i) $5^3 \times 5^4 =$ _____ (ii) $(6^4)^2 =$ _____

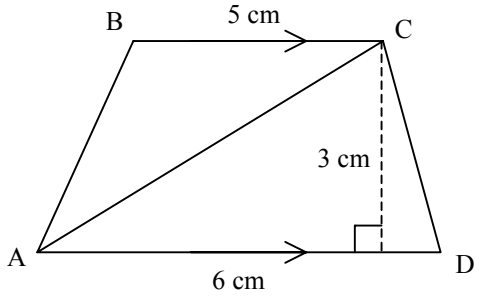
(b) Find the value of:

$2^3 \times 3^0 \times 4^{-1}$

(4 marks)

5. (a) Calculate:

(i) the area of **triangle ABC**



(ii) the area of **triangle ACD**

(iii) the area of the **quadrilateral** ABCD.

(b) What **name** do we give to a quadrilateral like ABCD? _____

(4 marks)

6. The diagram shows a part of a spreadsheet:

	A	B	C	D	E	F	G
1	Cuboid Number	Length (cm)	Breadth (cm)	Height (cm)	Base area (cm^2)	Volume (cm^3)	
2	1	5	4	6			
3	2	6	3	4			
4	3	4	2	1			
5							

(a) What formula should I type in cell E2 to get the **base area** of cuboid number 1?

_____

(b) What formula should I type in cell F2 to get the **volume** of cuboid number 1?

_____

(c) If I apply the same procedure what **values** should I get in cells

(i) E3: _____,

(ii) F4: _____ ?

(6 marks)

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7. 59% of the population of a town are over 35 years of age and 51% are females. The population of the town is 14,800.

(a) What percentage of the population is 35 years old or younger?

(b) How many people are over 35 years of age?

(c) What percentage of the population are males?

(d) How many females are there in town?

(6 marks)

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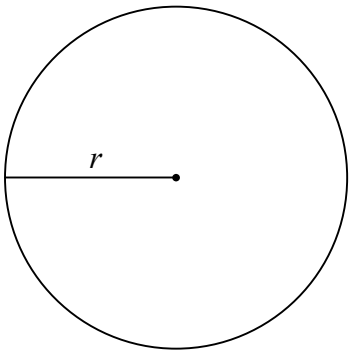
8. (a) What formula do we use



(i) to find the **circumference** of a circle?

C = _____.

(ii) to find the **area** of a circle?

A = _____.

(b) If $r = 4$ cm, calculate correct to 2 decimal places,

(i) the **circumference** of the circle:

(ii) the **area** of the circle:

(6 marks)

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9. Michelle is using the programming language LOGO. She types the following procedure:

```
TO SHAPE
REPEAT 4[FD 30 RT 90]
REPEAT 4[FD 60 RT 90]
REPEAT 4[FD 90 RT 90]
END.
```

Sketch the shape Michelle gets when she runs this procedure.

(6 marks)

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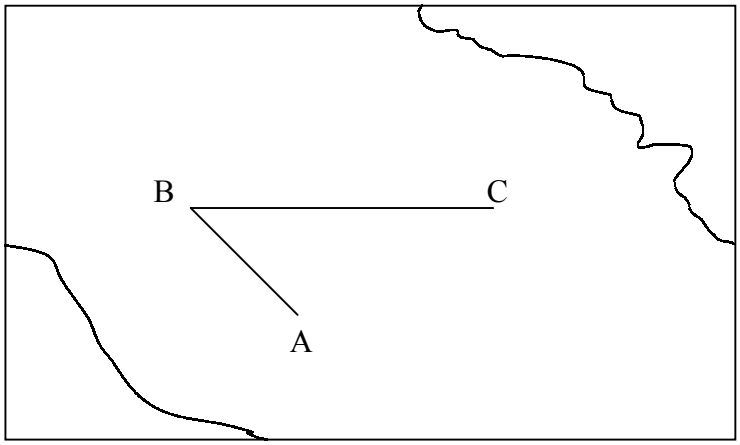
10. This diagram is a part of a larger map with scale 1 : 100 000.



Towns A, B and C are shown on the map.

(a) **Measure** the straight line distance on the map

(i) between town A and town B.

_____cm.

(ii) between town B and town C. _____cm.

(b) Anthony travels in a straight line from town A to town B and then turns and travels to town C. How many **centimetres** are covered on the map?

_____cm.

(c) What is the **actual** distance in **kilometres** covered by Anthony?

_____km.

(6 marks)

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11. (a) Expand and simplify: $\mathbf{3}\boldsymbol{x}\mathbf{(2}\boldsymbol{x}\mathbf{ + 1) + 2}\boldsymbol{x}\mathbf{(}\boldsymbol{x}\mathbf{ - 1)}$

(b) If $\boldsymbol{a} = \mathbf{3}$ and $\boldsymbol{b} = \mathbf{2}$, evaluate $\mathbf{2}\boldsymbol{a}^{\mathbf{2}} \mathbf{- 3}\boldsymbol{b}$

(c) Solve the equation: $\mathbf{2}\boldsymbol{x}\mathbf{ + 3 = 21}$.

(8 marks)

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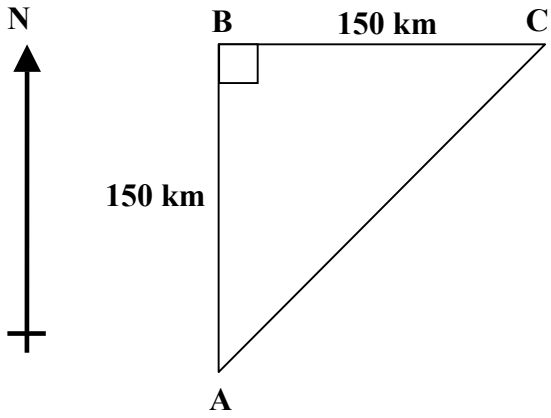
12. A ship sails from port A to port B. Port B is 150 km due **north** of port A. It, then, sails for another 150 km due **east** to port C.

(a) Calculate the **straight line distance** from port A to port C. Give your answer correct to 2 decimal places.



(b) Give the **three figure bearing** of port C from port A.

(8 marks)

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13. A bag of mixed fruits has 2 apples, 2 oranges and 1 pear. Another bag has 1 apple, 2 oranges and 1 pear. I take one fruit from each bag.

(a) Complete the **possibility space:**

2nd BAG \ 1ST BAG	A	A	O	O	P
A	A, A		O, A		
O				O, O	
O	A, O				P, O
P		A, P			

A stands for apple
O stands for orange
P stands for pear

(b) What is the probability that:

(i) I get **at least one apple**?

(ii) I do **not** get a pear?

(8 marks)

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14. (a) Draw a circle of radius 4 cm. Using ruler and compasses only, construct a regular hexagon of side 4 cm on the circumference of this circle.

(b) (i) The profits from a jumble sale were distributed as follows:
one fourth to the youth club,
one half to the ladies' circle, and
the rest to buy toys for children.

Draw a PIE CHART to illustrate the above information.

(ii) If the total profits in the jumble sale were Lm500, how much money was spent on children's toys?

(8 marks)

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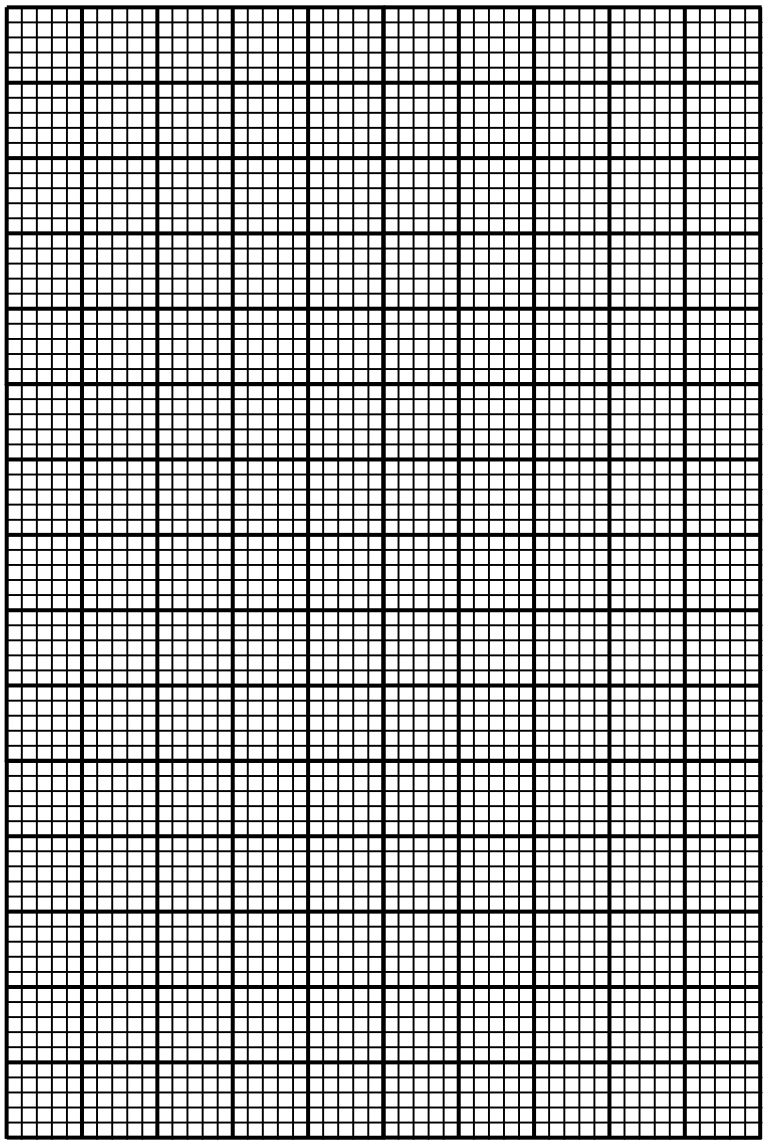
15. (a) Complete the table for the values of $y = 2x + 3$.

x	–2	0	1
y			

(b) Using a scale of 2 cm to represent 1 unit on both axes, draw the graph of $y = 2x + 3$ on the grid below.

(c) Use your graph to find the value of x when $y = 1$ Ans: _____



(8 marks)

END OF PAPER