JUNIOR LYCEUM ANNUAL EXAMINATIONS - 2004
Educational Assessment Unit - Education Division

FORM 2   **MATHEMATICS (NON-CALCULATOR PAPER)**   **TIME: 10 min.**
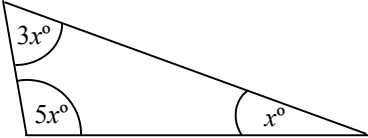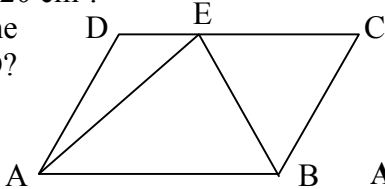

Name _____   **Class** _____

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. What is 50% of 50? **Ans:** _____	
2. Find the value of x°. $3x^\circ$ $5x^\circ$ x° **Ans:** _____	
3. Taking π as 3, calculate the circumference of a circle of radius $5\frac{1}{3}$ cm. **Ans:** _____	
4. The diagonals of a Rhombus intersect at an angle of 90°. TRUE or FALSE? **Ans:** _____	
5. Evaluate $3^2 + 2^3$ **Ans:** _____	
6. Rearrange in order of size, starting with the smallest: $\frac{2}{3}$, $\frac{3\cdot1}{3}$, $\frac{1}{4}$ **Ans:** _____, _____, _____	
7. Evaluate $\frac{1}{2} - \frac{1}{3} + \frac{1}{4}$ **Ans:** _____	
8. $\sqrt{50}$ is approximately equal to: A) 25 B) 7 C) 5 D) 10 **Ans:** _____	
9. The area of $\triangle AEB = 20$ cm^2. What is the area of the parallelogram ABCD? **Ans:** _____	
10. A car covers 5000m in 6 minutes. What is the speed in km/hr? **Ans:** _____	

END OF PAPER

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| **FORM 2** | **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 Cal	**Global Mark**
Mark																		

DO NOT WRITE ABOVE THIS LINE

Name _____   **Class** _____

CALCULATORS ARE ALLOWED

ANSWER ALL QUESTIONS.

1. a) Write down 27.1 correct to the nearest 10.

    _____

    b) Write down 23.45 in standard form.

    _____

    c) Evaluate correct to 2 decimal places $(3.22)^2 + \sqrt{16}$.
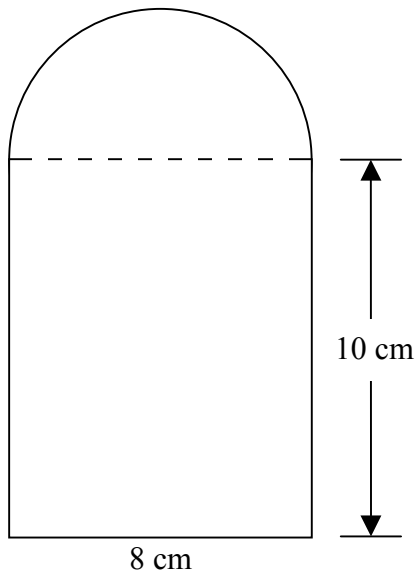
    _____
    4 marks

2. Divide Lm 400 in the ratio 4 : 3 : 1.

    _____
    4 marks

3. On a particular map of Gozo, the distance between Rabat and Xlendi is 5.8 cm.
    The actual distance between the two villages is 2.61 km.
    Work out the map ratio in the form 1: n.

    _____
    4 marks

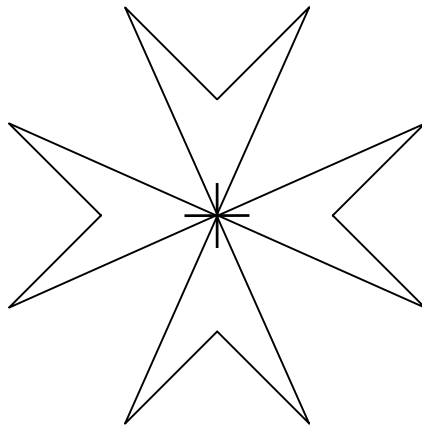4. The diagram shows a rectangle joined to a semicircle.

a) What is the radius of the semicircle?

_____

10 cm

b) Calculate the area of the semicircle correct to 2 d.p.

_____

8 cm

c) Work out the total area of the diagram correct to 2 d.p.

_____

4 marks

5. The diagram shows a Maltese Cross.

a) What is its order of rotational symmetry?   _____
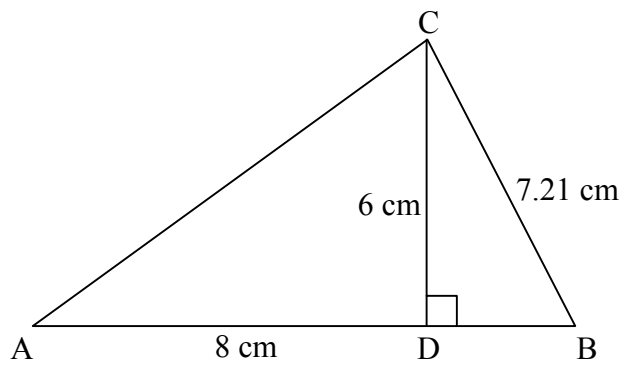
b) Draw two lines of symmetry.

4 marks

6. a) Solve the equation $3(x - 5) + 6(7 - x) = 6x$

b)   In the formula $v = u + 4t$ make u the subject of the formula.

_____

_____

6 marks

7.   In triangle ABC, CD is perpendicular to AB. The area of ΔABC is 36 cm^2.

C

6 cm

7.21 cm

A   8 cm   D   B

a)   Work out the length of AB.

_____

b)   Given that AD = 8 cm, write down the length of BD.

_____

c)   Given also that BC = 7.21 cm, find the perimeter of ΔDBC.

_____

6 marks

8.   ABCD is a parallelogram in which ∠C = 60º and ∠BED = 95º.

Calculate, giving reasons, the values of the angles marked x^o, y^o and z^o.

$$x^o = \underline{\hspace{3cm}}, \quad y^o = \underline{\hspace{3cm}}, \quad z^o = \underline{\hspace{3cm}}$$
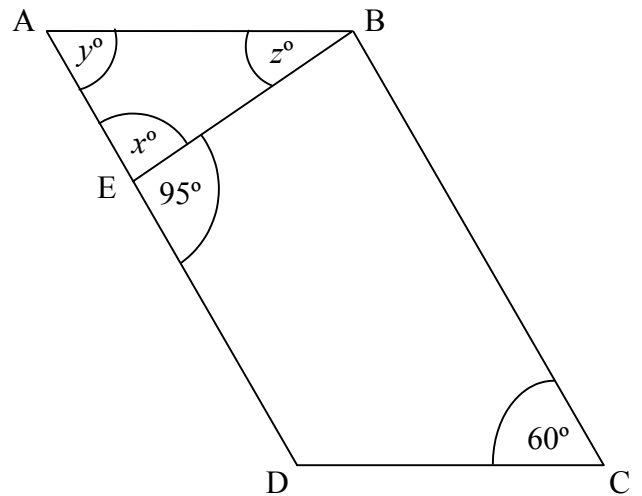
6 marks

9. Jane wants to draw the symmetrical figure shown using the following **LOGO** commands.
   a) Fill in the blanks with the correct numbers:

   pd
   fd 100
   rt 90
   fd 120
   rt 45
   fd 71
   rt _____
   fd 71
   rt 45
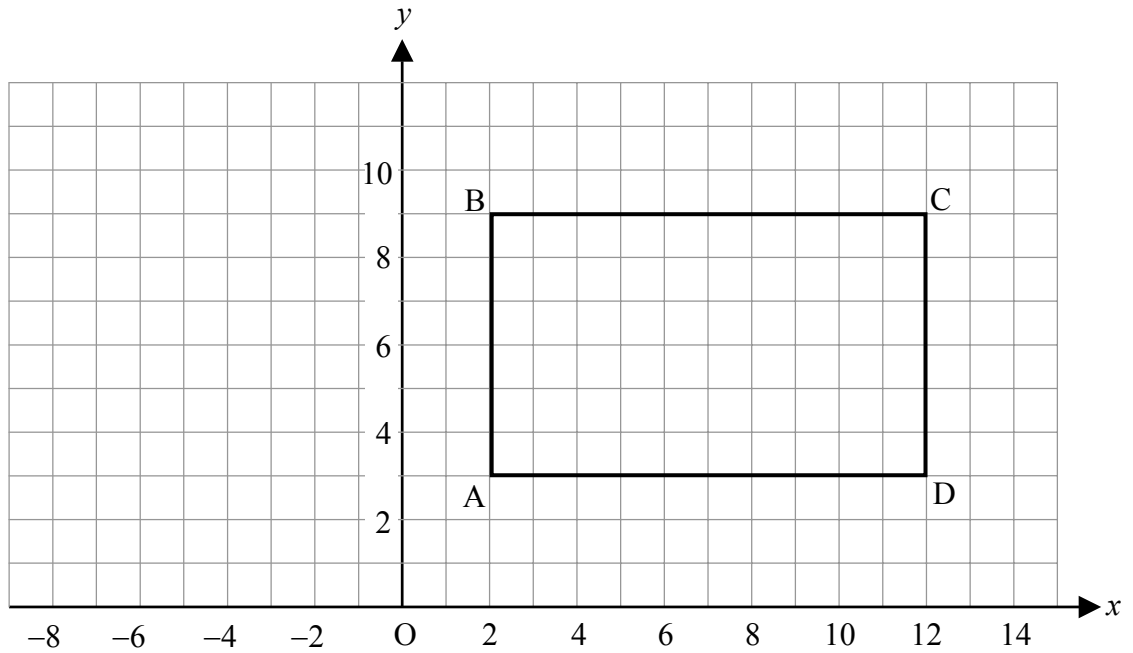   fd _____

START
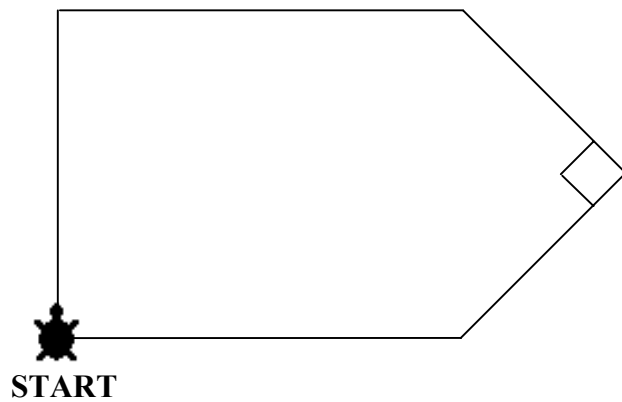
   b) What is the perimeter of the figure in turtle steps?

   _____ turtle steps.

   c) Draw the line of symmetry of the figure.

6 marks

10. ABCD is a rectangle of length 10 units and width 6 units. A has coordinates (2, 3).
The diagonals AC and BD intersect at E.

a) Write down the coordinates of point C. _____

b) Draw the diagonals AC and BD. Write down the coordinates of point E. _____

c) A′B′E′ is the reflection of triangle ABE in the *y*-axis. Draw triangle A′B′E′.

6 marks

11. Write down the **median**, **mode** and **range** and work out the **mean** (correct to 2 d.p.) of the following 13 numbers:

2, 7, 8, 5, 3, 12, 7, 9, 6, 4, 2, 12, 7

Median: _____

Mode: _____

Range: _____

Mean: _____

8 marks

12. a) Complete the table for $y = 2x + 4$

x	−3	−1	0	2
y			4	

b) Use your table to draw the graph of y = 2x + 4. Use a scale of 2 cm to represent 1 unit for each axis.

c) From your graph write down:

i. the gradient of the line _____.

ii. the *y* intercept of the line _____.

8 marks

13. The water tank on the roof of a house has a horizontal base 110 cm long and 90 cm wide. It holds water to a depth of 104 cm.

a) Calculate the volume, in litres, of the water it holds.

104 cm

90 cm

110 cm
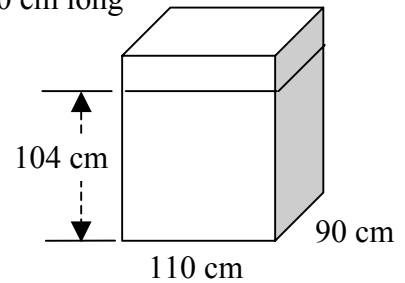
_____ litres

b) The water is used to fill a number of cylindrical cans, each having a diameter of 28 cm

and a height of 32 cm. Calculate:

i. the volume of each can. Write your answer correct to the nearest cm³.

_____ cm³

ii. the largest number of these cans that can be completely filled from the

water in the tank. Give your answer correct to the nearest whole number of cans.

8 marks

14. a) One letter is chosen at random from the letters of the word

M A T H E M A T I C S.

What is the probability that it will be

i.	the letter H		_____
ii.	the letter M		_____
iii.	a vowel		_____
iv.	iv. the letter B?		_____

b) When using a spreadsheet Alfred types in the information shown in the table. In cell D2 he types in the formula: = B2 * C2.

	A	B	C	D
1		length (cm)	breadth (cm)	
2	Rectangle 1	10.7	8.5	

i.   What   should   the   heading   in   cell   D1   be?   (Include   the   units   )
_____

ii. What will the answer in cell D2 be when he presses the " **enter** " key?

_____

8 marks

15.   Use ruler and compasses only for this question.
      All construction lines must be shown.
      Draw a line AB 10 cm long. Construct an angle of 60° at A. Construct an angle of
       30° at B. Label with C the point where the arms of angle A and angle B cross.

i.   Measure and write down the length of AC.   _____

ii.   Write down the size of angle C .   _____

<div align="right">8 marks</div>

END OF PAPER