

JUNIOR LYCEUMS ANNUAL EXAMINATIONS - 2001

Educational Assessment Unit - Education Division

FORM 2

MATHEMATICS (MENTAL)

TIME: 15 minutes

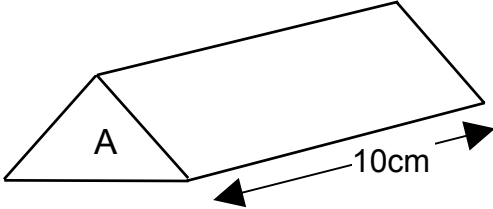

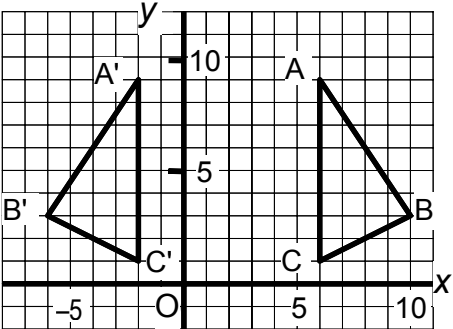
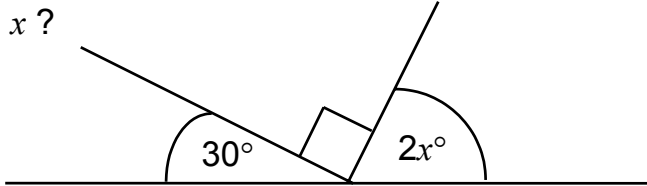
Name: _____

Class: _____

Mark

- ANSWER ALL QUESTIONS.
- EACH QUESTION CARRIES 1 MARK.
- CALCULATORS, RULERS, PROTRACTORS AND OTHER MATHEMATICAL INSTRUMENTS ARE NOT ALLOWED.
- WRITE DOWN YOUR ANSWER ONLY IN THE SPACE PROVIDED.

**DO NOT
WRITE IN
THIS SPACE**

	QUESTION	ANSWER
1.	What is the value of : $14 + 3 \times 7$?	
2.	What is 25 % of 64.8 ?	
3.	<p>This prism has a volume of 24.5cm^3. What is the area of face A?</p> 	
4.	<p>Give a rough estimate for:</p> $4.1 \times \sqrt{37.1}$	
5.	<p>What shape does the LOGO turtle draw with these commands?</p> <p>fd 60 rt 90 fd 60</p>	
6.	<p>What is the probability of choosing a letter 'B' from the word PROBABILITY ?</p>	
7.	<p>Triangle A'B'C' is the reflection of triangle ABC. Draw the mirror line.</p> 	
8.	<p>Given that $2m = 3n - p$, what is the value of m when $n = 5$ and $p = -3$?</p>	
9.	<p>A bag contains 30 marbles. 15 are white and the rest are red. Write down in its simplest form the ratio :- number of red marbles : number of marbles =</p>	
10.	<p>What is the value of x ?</p> 	

JUNIOR LYCEUMS ANNUAL EXAMINATIONS - 2001

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FORM 2

MATHEMATICS (Main Paper)

TIME: 1hr 45 min

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total Main	Mental	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) Write as a single expression in index form:

$$5^4 \times 5^3 \times 5^{-5} = \underline{\hspace{10em}}$$

- (b) Express in standard form:

(i) 7310

(ii) 0.00253

(4 marks)

2. Work out, giving your answers to 3 significant figures :

(i) $\frac{0.758 \times 10.911}{0.637}$

(ii) $\frac{\sqrt{8.25} + 6.32^2}{4.17}$

(4 marks)

3. (i) What multiplying factor would increase a quantity by 12%?
- (ii) A dealer buys a T.V. set for Lm158. What is the selling-price to the nearest Lm if the dealer makes a profit of 12%?

(4 marks)

4. Derek wants to sell his car and decides to put an advertisement in the local paper.

The rates charged are :

Lm2.60 for the first ten words or less *and*

Lm0.33 per word for each word over the first ten words.

He also wishes to include a small photo which costs Lm5.

How much will the advertisement cost him if he uses 23 words in all and includes one photo?

(4 marks)

5. The hours of sunshine recorded for a week were as follows:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
11.5	8.6	11.0	13.2	13.5	12.1	10.6

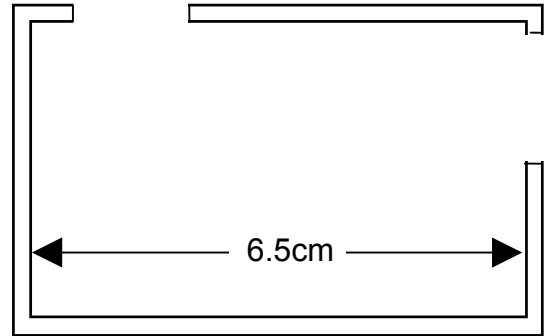
- (i) What is the average number of hours of sunshine per day for this week?

- (ii) Express this time in hours and minutes.

(4 marks)

6. (i) Simplify the ratio: $\frac{1}{3} : \frac{3}{4}$.

(ii) This is a plan of Mary's room. In her plan she uses a scale of 2cm : 1m.
What is the actual length of her room?



(6 marks)

7. (a) Solve :

$$5 - \frac{1}{3}(2x - 3) = 2.$$

(b) Put in < or > :

$$-2 \times -5 \quad \square \quad -3 \times 4.$$

(6 marks)

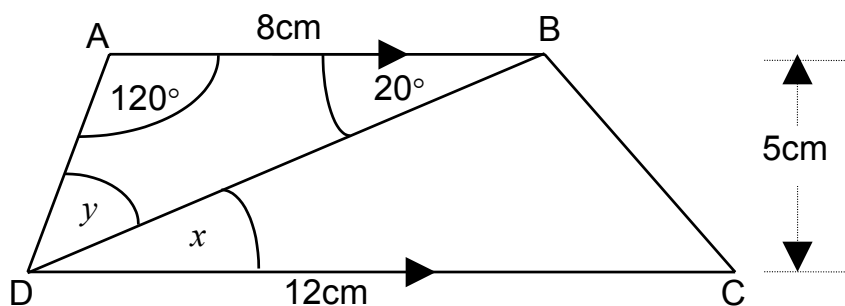
8. I think of a number, multiply it by 2 and then subtract 3. The answer is 7.

(i) Write an equation for this statement.

(ii) What is the number I think of?

(6 marks)

9.



ABCD is a trapezium.

(i) What is the area of the trapezium ABCD ?

(ii) What is the size of angle x ? Give a reason for your answer.

$x =$ _____ Reason: _____

(iii) What is the size of angle y ?

$y =$ _____

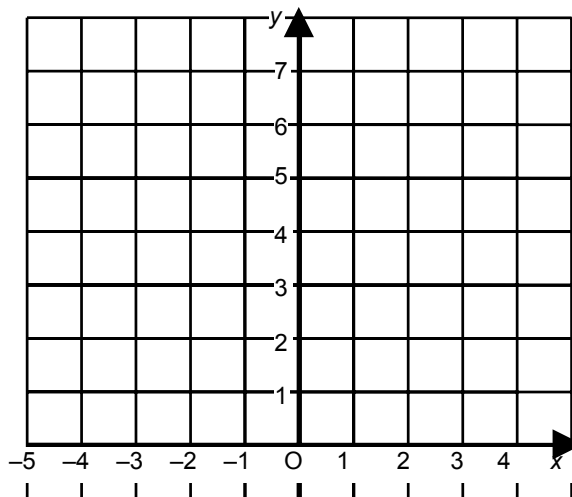
(6 marks)

10. A is the point (1, 2) and B is the point (2, 5).

- (i) Plot the points A and B.
- (ii) Draw the line segment AB.

A'B' is the image of AB under the translation $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$.

- (iii) Write down the co-ordinates of A' and B'.



- (iv) Draw the line segment A'B'.

(6 marks)

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11. Draw a line AB, 6.2cm long.
At B, draw BD perpendicular to AB.
Now construct the line BC which bisects angle ABD, such that BC = 5.5cm.
Join and measure AC.



(8 marks)

12. Mum goes to the supermarket to buy groceries. This spread-sheet shows her shopping-list:

	A	B	C	D	E	F	G
1							
2			Item		Price		Cost
3	1.	2	Packs of cereals	at Lm	1.15	each	
4	2.	0.5	kg of cheese	at Lm	2.96	per kg	
5	3.	3.5	kg of oranges	at Lm	0.24	per kg	
6							

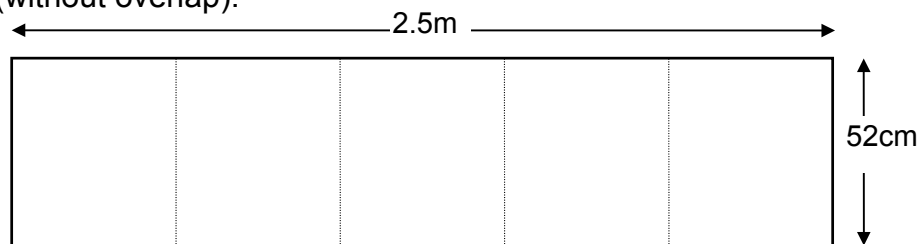
She also *returns* 6 empty bottles for which she gets 5c per bottle.

- (i) Which one of the following formulas must be put in cell **G3** to get the cost of the 2 packs of cereals?
 (a) = B3 * D3 (b) = B3 * E3 (c) = B3 * F3
- (ii) How much does she spend in all at the supermarket?

(8 marks)

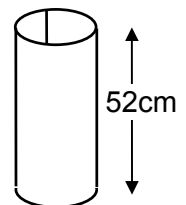
13. A strip of paper is 2.5m long and 52cm wide.
 (i) What is the area of the strip in square metres?

The strip is then cut up as shown into five equal parts. Each part is rolled into a cylinder of height 52cm (without overlap).



- (ii) What is the circumference of each cylinder in cm?

- (iii) What is the radius of each cylinder, in cm, correct to 1 decimal place?



(8 marks)

14. This list shows the weights (to the nearest kilogram) of a number of children in a class.

36 40 41 39 42 35 41 52 47 44
 37 54 50 49 47 33 38 39 34 38

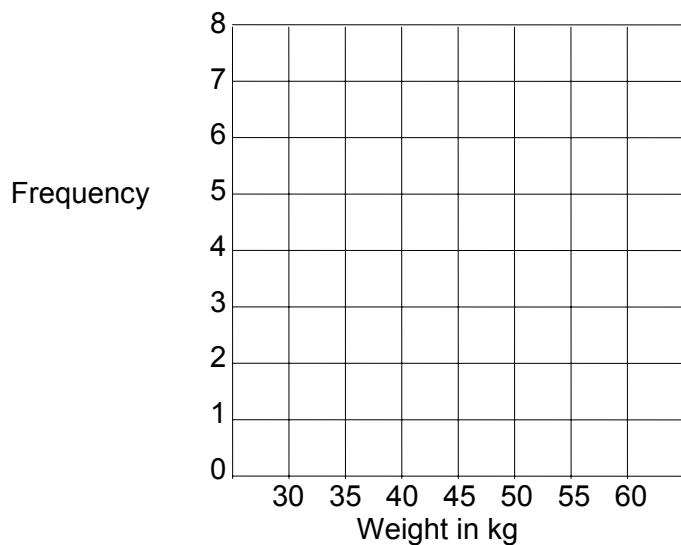
Use this list to fill in the table below:

FREQUENCY TABLE		
Weight, W, in kg	Tally	Frequency
$30 \leq W < 35$		
$35 \leq W < 40$		
$40 \leq W < 45$	///	5
$45 \leq W < 50$		
$50 \leq W < 55$		
Total		20

(i) Which weight group is the **mode** ? _____

(ii) What is the **range** of weights? _____

(iii) Use the table to draw a bar chart to show the data given in the frequency table.



(8 marks)

15. (a) Complete the table for $y = 3x - 2$.

x	-1	0	1	2	3
$3x$	-3		3		
-2	-2	-2	-2	-2	-2
y	-5			4	

- (b) Draw the graph of $y = 3x - 2$.
Use 2cm to represent 1 unit on the x -axis and 1cm to represent 1 unit on the y -axis.

- (c) Use the graph to find the value of x when y is equal to zero.

$x =$ _____ when $y = 0$.

(8 marks)
