

SECONDARY SCHOOL ANNUAL EXAMINATIONS - 2003

Educational Assessment Unit - Education Division

FORM 4

MATHEMATICS (NON CALCULATOR PAPER)

TIME: 20 min.

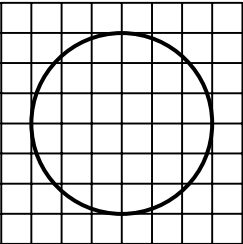
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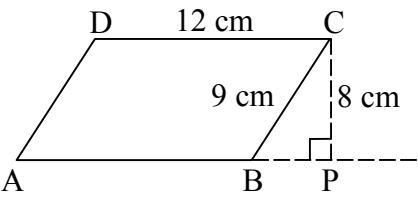
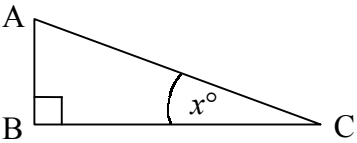
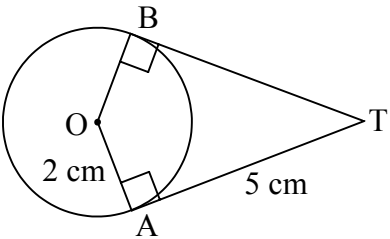
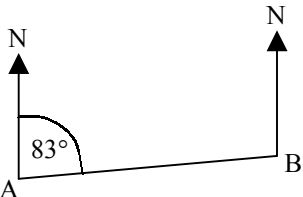
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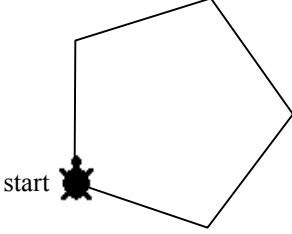
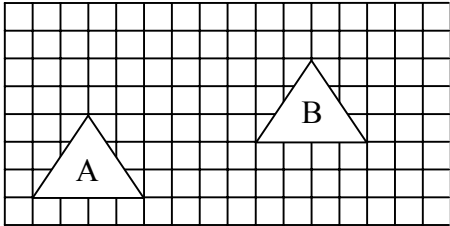
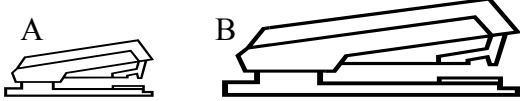

Mark

INSTRUCTIONS TO CANDIDATES:

- **ANSWER ALL QUESTIONS. THERE ARE 20 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.	Calculate: $(3 \times 99) + (7 \times 99)$ Ans: _____	
2.	Write in index form : $3^7 \times 3^8$ Ans: _____	
3.	Give a rough estimate of $\sqrt[3]{1007}$ Ans: _____	
4.	Change $3.5 \text{ } \ell$ to $m\ell$ Ans: _____	
5.	Simplify the ratio $24 : 36$ Ans: _____	
6.	A discount of Lm12 is given on a jacket costing Lm48. What percentage discount is this? Ans: _____	
7.	<p>The area of each square represents 1 cm^2. Estimate the area of the circle.</p>  Ans: _____	

QUESTION	SPACE FOR WORKING IF REQUIRED
<p>8. Find the area of parallelogram ABCD.</p>  <p style="text-align: right;">Ans: _____</p>	
<p>9. Put < or > in the space to make the statement correct.</p> <p style="text-align: right;">Ans: _____ 33% $\frac{1}{3}$</p>	
<p>10. Fill in the space to make the statement correct.</p>  <p style="text-align: right;">$\sin x = \frac{\quad}{AC}$</p>	
<p>11. Write down the length of BT.</p>  <p style="text-align: right;">Ans: _____</p>	
<p>12. 4 cinema tickets cost Lm10. Find the cost of 100 tickets.</p> <p style="text-align: right;">Ans: _____</p>	
<p>13. Monique types 350 words in 10 minutes. Find her average typing speed in words per minute.</p> <p style="text-align: right;">Ans: _____</p>	
<p>14. Look at the diagram. What is the bearing of A from B?</p>  <p style="text-align: right;">Ans: _____</p>	

QUESTION	SPACE FOR WORKING IF REQUIRED
<p>15. What is the probability that the first person you meet was born either on a Saturday or a Sunday?</p> <p style="text-align: right;">Ans: _____</p>	
<p>16. The following logo procedure draws a regular pentagon. Fill in the blank space correctly to complete the procedure.</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>To Pentagon</p> <p>Repeat 5 [FD 100 RT _____]</p> <p>End</p> </div> </div>	
<p>17. Mark is charged 24% income tax. How much income tax does he pay on his weekly wage of Lm175?</p> <p style="text-align: right;">Ans: _____</p>	
<p>18. Figure B is the image of the figure A. Write down the vector that describes the translation.</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;">Ans: _____</div> </div>	
<p>19. B is an enlargement of A. Estimate the scale factor.</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;">Ans: _____</div> </div>	
<p>20. An advert in a newspaper costs 50 cents per cm^2. Estimate the area to find how much I have to pay to publish this advert in the newspaper.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">14 NIGHTS IN SICILY</p> <p style="text-align: center;"><i>Half board, two star hotel.</i></p> <p style="text-align: center;"><i>Flight to and from</i></p> <p style="text-align: center;"><i>Malta International Airport.</i></p> <div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 10px;">Lm340 per person</div> </div> <p style="text-align: center;"><i>Save 20% if you book by the end of July</i></p> </div> <p style="text-align: right;">Ans: _____</p>	

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2003

Educational Assessment Unit - Education Division

FORM 4

MATHEMATICS (Main Paper)

TIME: 1 h 40 min.

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

DO NOT WRITE ABOVE THIS LINE

Name _____

Class _____

ANSWER ALL QUESTIONS.

1. a) Find $4\frac{2}{3} \times 2\frac{1}{7}$.

Ans: _____

b) i) Give a **rough estimate** for the value of 75.3×0.045 .

Ans: _____

ii) Use **your calculator** to find 75.3×0.045 correct to 2 significant figures.

Ans: _____

9 marks

2. In a competition Deborah won 1000 euro. She wanted to change this amount to Malta liri. If 2.4089 euro is equivalent to Lm1 find, correct to the nearest cent, how much Deborah received.

Ans: _____
3 marks

3. A shopkeeper wants to give a 20% discount on all the items in his shop. He used the spreadsheet to work out the sale price of every item.

Below is what the spreadsheet showed for the sale of a T-shirt.

In the appropriate boxes write the formulae the shopkeeper entered in cells **C4** and **C5** to arrive at the sale price.

	A	B	C	D
1				
2		Item	T-shirt	
3		Original Price:	Lm15.00	
4		20% Discount:	Lm3.00	
5		Sale Price:	Lm12.00	
6				
7				

Formula to calculate the **20% discount** on the amount in cell **C3**

Formula to calculate the **Sale Price**

6 marks

4. The following are the times, in minutes, taken by a group of 18 children to arrive at school from home.

3	24	8	15	9	22
19	15	11	7	11	9
15	10	22	6	10	18

a) Find i) the **mode**

Ans: _____

ii) the **median**

Ans: _____

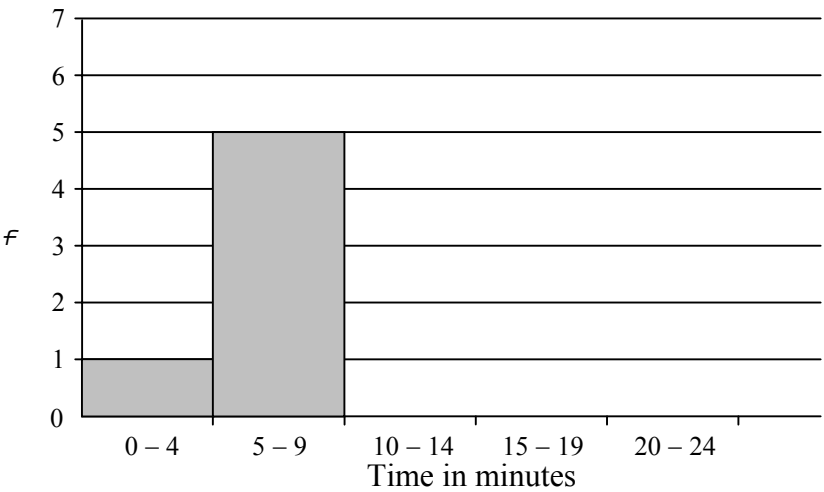
iii) the **mean**

Ans: _____

b) Complete the frequency table:

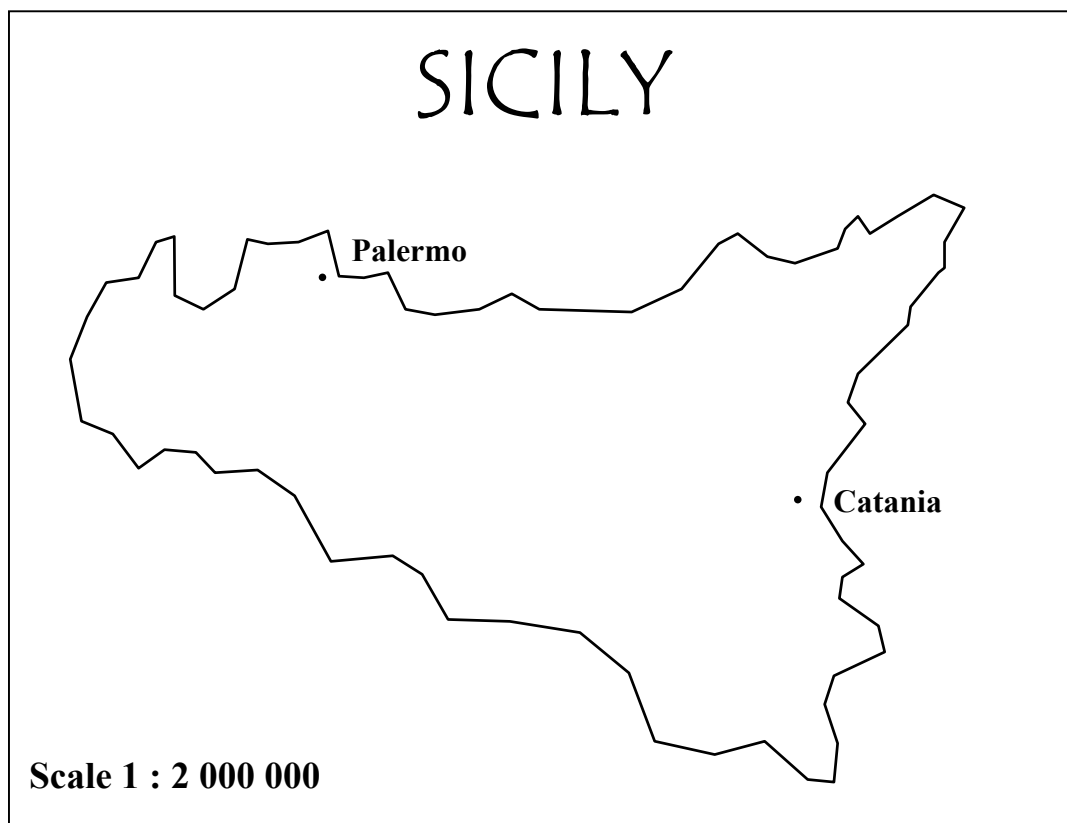
Time in Minutes	Tally	Frequency (f)
0 – 4		
5 – 9		
10 – 14		
15 – 19		
20 – 24		

c) Complete the histogram:



11 marks

5. This is a map of Sicily.



- a) Use **your ruler** to measure the distance between Palermo and Catania on the map.

Ans: _____ cm.

- b) Use your answer in part a) to find the **real distance** between Palermo and Catania in **kilometres**.

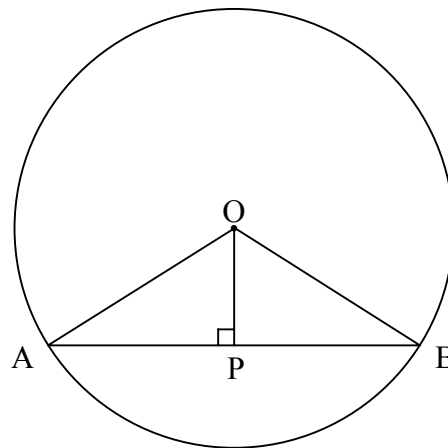
Ans: _____ km.
5 marks

6. O is the centre of a circle radius 9.6 cm.
AB is a chord 14.8 cm long and $\angle OPA$ is 90° .

a) Find the length of AP.

Ans: _____

b) Find the length of OP correct to 1 d.p.



Ans: _____

c) Find the area of triangle OAB correct to 2 d.p.

Ans: _____

7 marks

7. The diagram shows a straight-line graph of the form $y = mx + c$.

a) Write down the y-intercept.

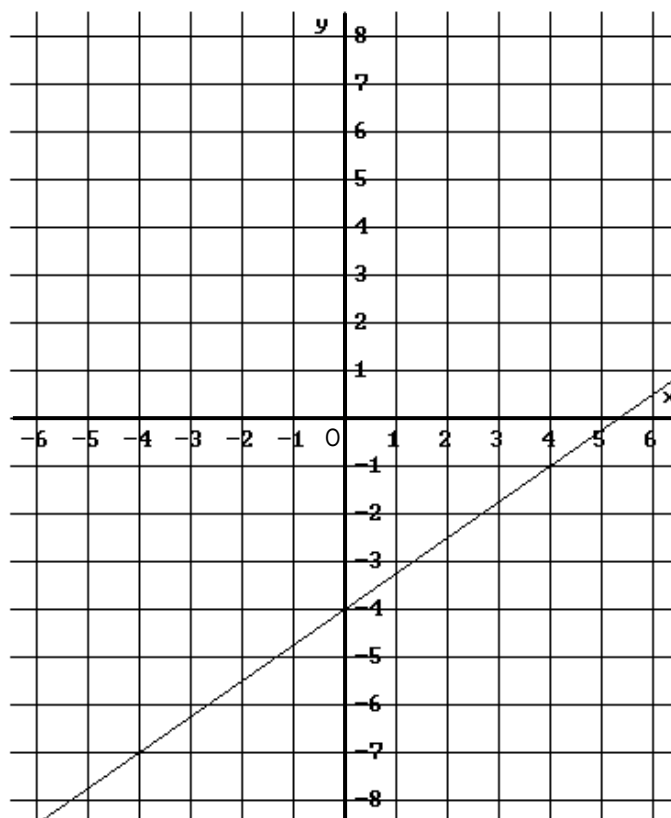
Ans: _____

b) Find the gradient of the graph.

Ans: _____

c) Write down the equation of the line.

Ans: _____



6 marks

8. Evaluate: a) i) $5^{-1} =$ _____

ii) $33^0 =$ _____

iii) $\sqrt[3]{2197} =$ _____

b) Solve the equation: $3x + 14 = 8 + x$

Ans: _____

c) If $A = \frac{1}{2}h(a + b)$ find A when $h = 7$, $a = 9$ and $b = 3$

Ans: _____

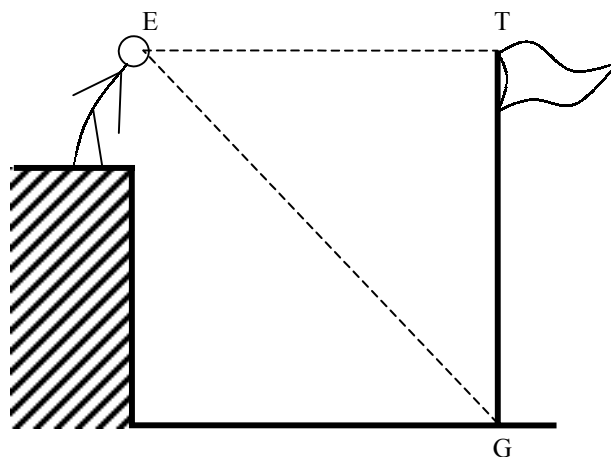
d) Make L the subject of the formula in $P = 2L + 2B$

Ans: _____

10 marks

9. The diagram shows a boy on a platform looking at a flagpole. The distance, ET, from his eye to the top of the pole is 4.9 m and the height of the flagpole, TG, is 5.5 m.

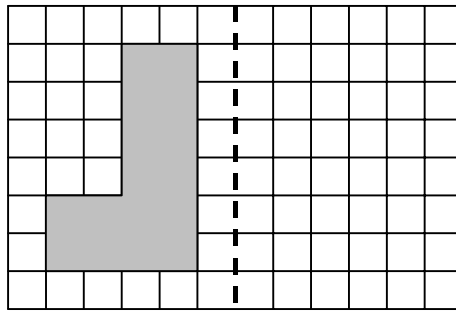
Find, correct to 1 d.p., the angle of depression.



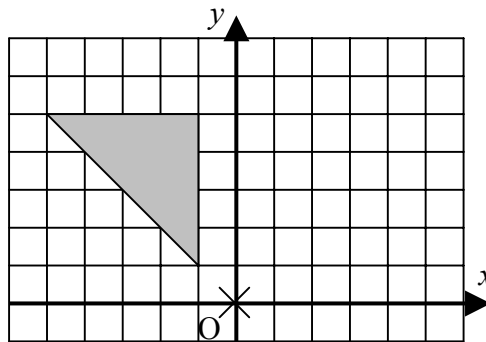
Ans: _____

5 marks

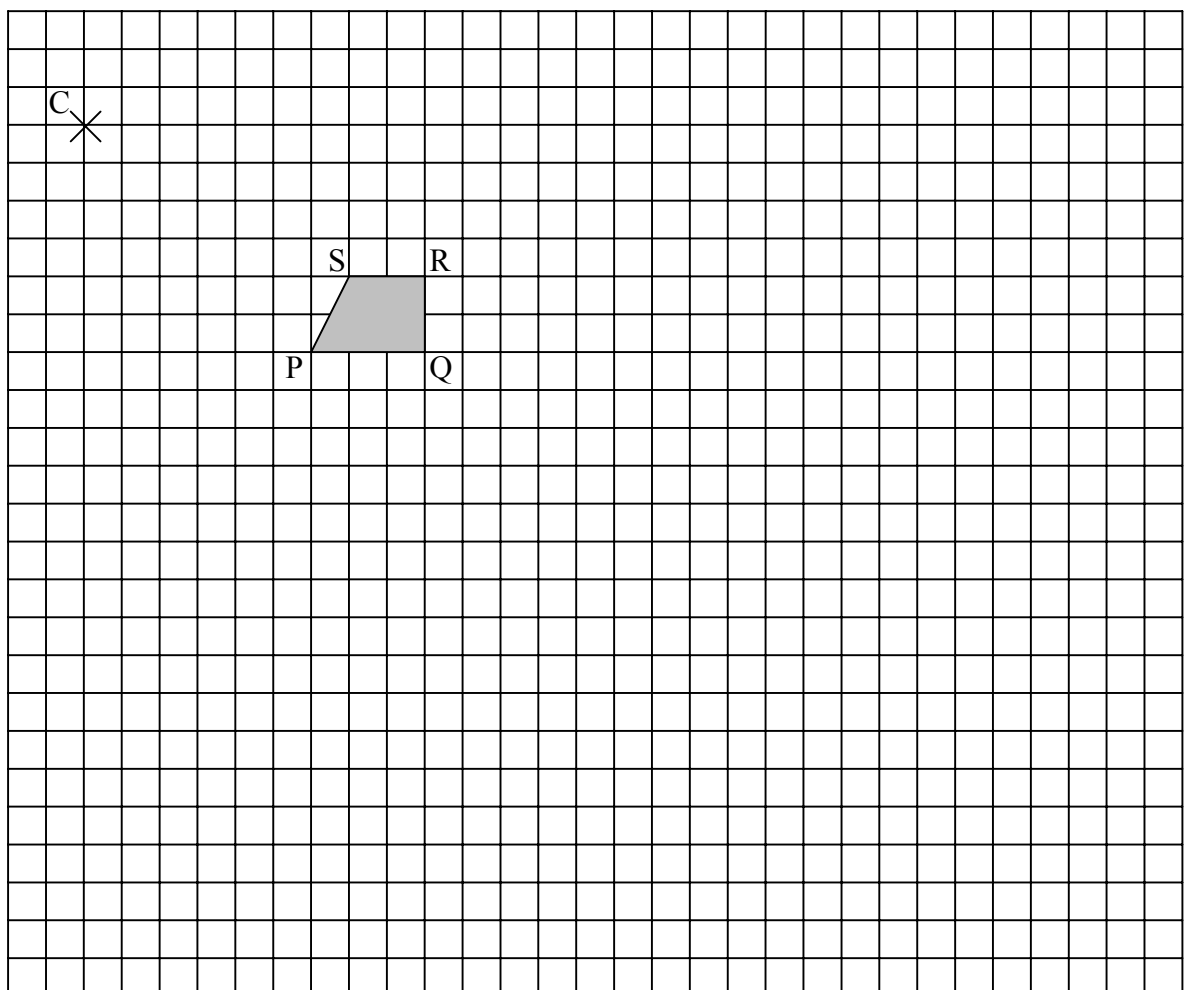
10. a) Draw the **reflection** of the object in the mirror line (the broken line).



b) Draw the image of the triangle after a **rotation** about O of 90° clockwise.

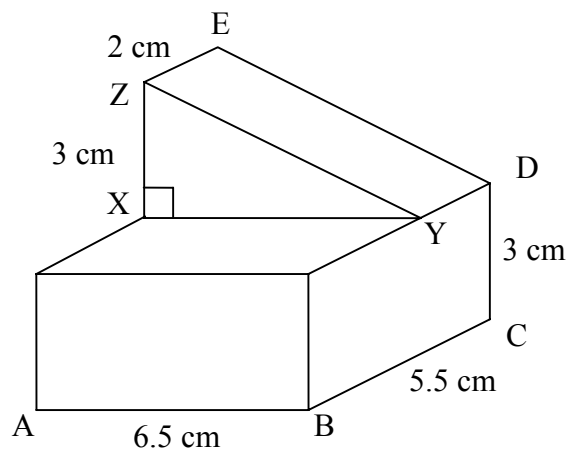


c) Using C as the centre of enlargement and a scale factor 3 draw the **enlargement** of PQRS. **Label** the enlargement P'Q'R'S'.



8 marks

11. The diagram shows a solid made up of a cuboid and a right triangular prism.
 AB is 6.5 cm, BC is 5.5 cm, CD is 3 cm,
 ZX is 3 cm and ZE is 2 cm.



- a) Find the **volume** of the **cuboid**.

Ans: _____

- b) Find the **volume** of the **right triangular prism**.

Ans: _____

- c) Find the **total volume** of the solid.

Ans: _____

- d) The solid is made of aluminium. 1 cm^3 of aluminium weighs 2.7 g.
 How much, correct to the nearest gram, does the solid weigh?

Ans: _____

10 marks

END OF PAPER