

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2004

Educational Assessment Unit – Education Division

FORM 3	Mathematics (NON CALCULATOR PAPER)	Time: 10 min
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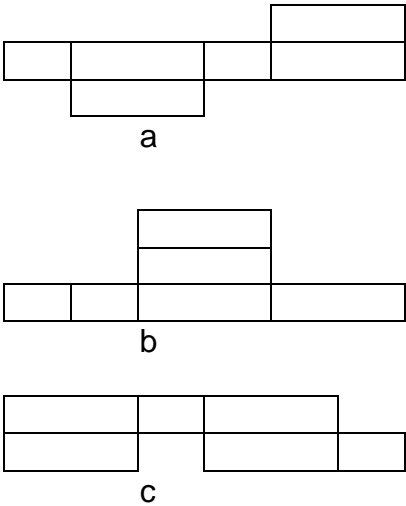
Name_____

Class_____

Mark

Instructions to Candidates:

- Answer **ALL** questions. There are **10** questions to answer.
- Each question carries **1 mark**.
- 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 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.

N ^o .	QUESTION	ANSWER	Space for Working if Required
1	Write down the value of 2.06×100		
2	Write 74900 in standard form .		
3	A woman has a 70 cm waist and an 85cm hips. Write and simplify the waist-to-hips ratio.		
4	Write down the next term of the sequence: 0.7 , 0.2 , -0.3 , -0.8 ,	_____	
5	A single ball is taken at random from a bag containing 10 balls numbered from 1 to 10. What is the probability of obtaining a prime-numbered ball?		
6	What is the length of a side of a CUBE which has a volume of 1000cm^3 ?		
7	An athlete runs a distance of 800m in 200seconds. Calculate the average speed in m/s.		
8	Which of the following is the net of a cuboid?  <p>a</p> <p>b</p> <p>c</p>		
9	Mortar is mixed using cement and sand in the ratio 1 : 3. If a builder mixed 20kg of mortar, calculate the amount of sand he used.		
10	Through how many degrees does the hour hand of a clock turn in going from 1 to 4 o'clock?		

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FORM 3	Mathematics Main Paper	Time: 1 h 50 min
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Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total Main	Non- Calc	GLOBAL MARK
Mark																		

DO NOT WRITE ABOVE THIS LINE

Name _____

Class _____

**CALCULATORS ARE ALLOWED BUT ALL
NECESSARY WORK MUST BE SHOWN**

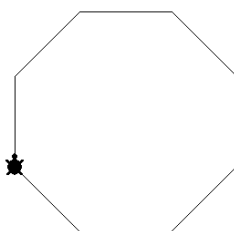
ANSWER ALL QUESTIONS

1. (i) Evaluate $3^2 + 4^3 =$

(ii) Write as a single number in index form: $8^5 \times 8^4 \times 8 =$

4 marks

2. Use Logo commands to complete the program that draws the **regular octagon** shown below. Each side is 50 turtle steps long.



pd repeat _____ [fd _____ rt _____]

4 marks

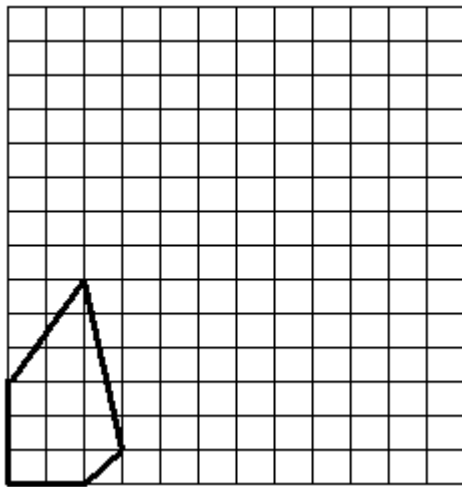
3. The diameter of a bicycle wheel is 61cm long. Through what distance, in centimetres, does the bicycle go when the wheel makes one complete revolution? Give your answer correct to one decimal place.

4 marks

4. Jillian had a salary of LM 7150 last year. This year her salary was increased by 4%. Calculate her salary this year.

4 marks

5. Draw an enlargement of the shape below using scale factor 2.

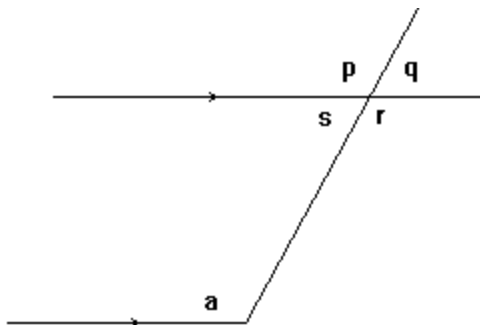


4 marks

6. **Underline** the correct answer in each of the following statements:

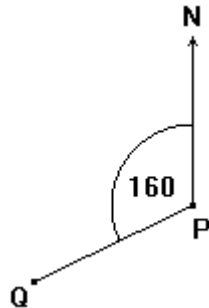
(i) A parallelogram has (2 , 3 , 4) pairs of parallel sides.

(ii) Angle (p , q , r , s) is alternate to angle a.



(iii) The rhombus, trapezium, kite and rectangle are all (regular polygons , solid shapes , quadrilaterals)

- (iv) The bearing of Q from P is (160° , 200° , 090°)



- (v) The sum of the exterior angles of a polygon is (180° , 90° , 360°)

6 marks

7. (i) Expand $3x(2x - 4)$

(ii) Factorise $3a^2 - 6a$

(iii) Solve the equation $3y - 4 = 2y - 1$

6 marks

8. The internal dimensions of a box in the form of a **cuboid** are 45cm by 30cm by 40cm.

(i) Calculate the **volume** of the box in cm^3 .

(ii) If $\frac{3}{4}$ of the box is filled with sand, find the **volume** of the sand contained in the box.

6 marks

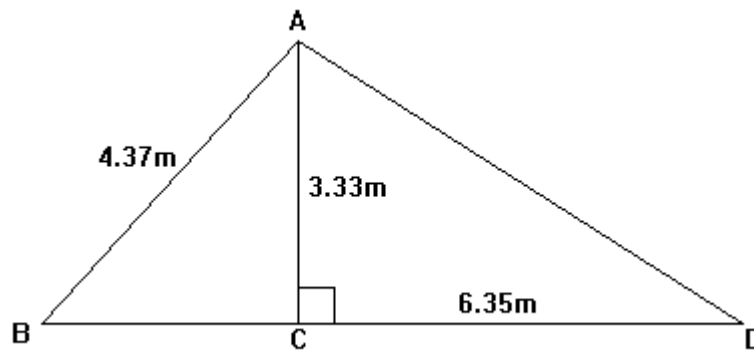
9. Use the formula $A = \pi r^2$ to calculate the **radius** of a circle which has an area of 50.26m^2 . Give your answer correct to the nearest metre.

6 marks

10. A machine manufactures 9 toys every 2 hours. Calculate the number of toys made between 8.00am and 8.00pm.

6 marks

11.



In triangle ABD, C is a point on BD such that AC is perpendicular to BD.
Given that $AB = 4.37\text{m}$, $AC = 3.33\text{m}$ and $CD = 6.35\text{m}$,

(i) Use Pythagoras' theorem to find the length of **BC** correct to 2 decimal places.

(ii) Calculate the **area of triangle ABD** correct to 2 decimal places.

8 marks

12. Use compasses and ruler only to construct an equilateral triangle inscribed in a circle of radius 4.5cm. Measure the length of one side of the triangle.

8 marks

13. Use your calculator to work out the following giving your answers correct to 3 significant figures.

i) $(2.8)^4 =$

ii) $\sqrt[5]{95629} =$

iii) $128.9 \times (71 - 23.6) \div 2.4 =$

iv) $\sqrt{3.5} \times 0.03^2 =$

8 marks

14.

A class of 25 students obtained the following marks in a test:

6 5 4 0 9 2 0 8 8 1 10 6 8

5 5 8 7 9 10 9 6 5 8 4 7

(i) Complete the following frequency table for the marks shown above:

MARK	TALLY	FREQUENCY
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

(ii) a) Find the **mode**.

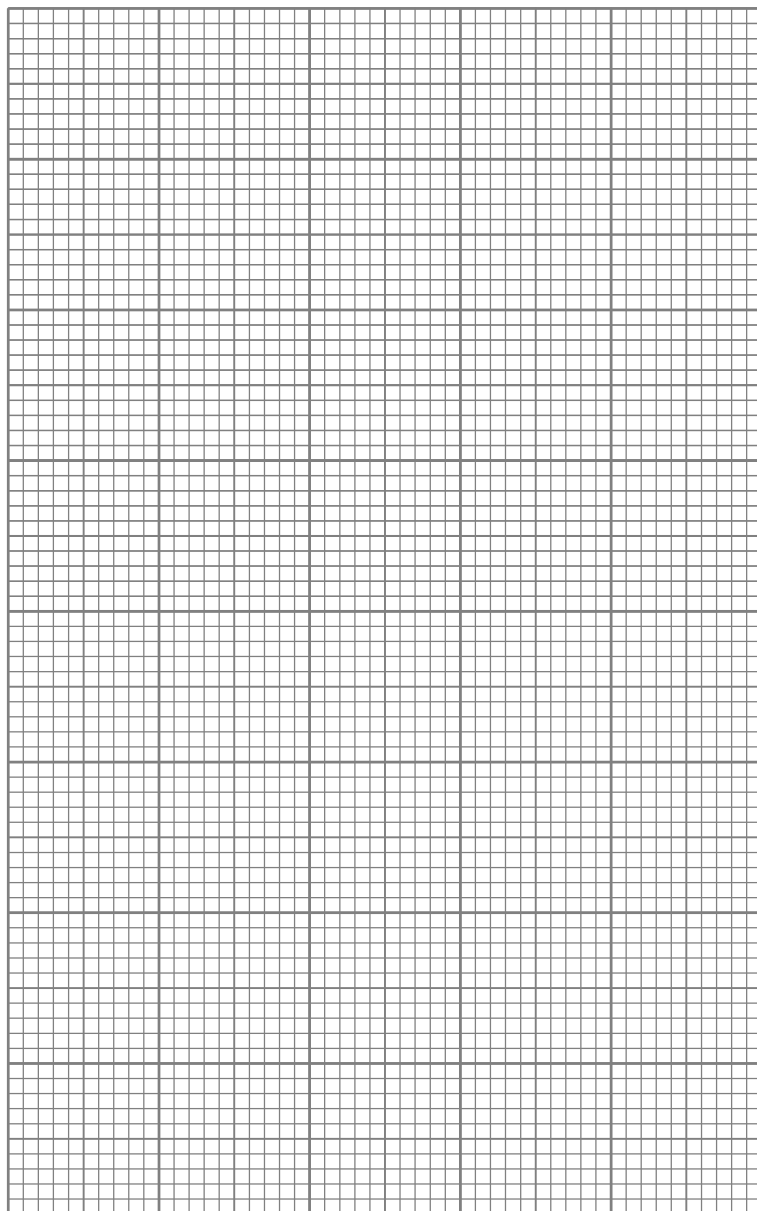
b) Calculate the **mean** mark of the test.

8 marks

15. (i) Complete the table for the values of $y = 2x - 1$

x	-1	0	3
y			

- (ii) Draw the graph of $y = 2x - 1$ taking values of x between -1 and 3



- (iii) Use your graph to find the value of x when $y = 4$

8 marks