Candidate's Examination No.....

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION AND VOCATIONAL TRAINING

FORM TWO SECONDARY EDUCATION EXAMINATION, 2012

0041

BASIC MATHEMATICS

TIME: 2½ HOURS

INSTRUCTIONS

1. This paper consists of sections A and B.
2. Answer **ALL** questions showing clearly all the working and answers in the spaces provided.
3. **ALL** writing must be in blue or black ink **EXCEPT** drawings which must be in pencil.
4. Write your examination number at the top right corner of every page.
5. Mathematical tables, geometrical instruments and graph papers may be used where necessary.
6. Cellphones and calculators are not allowed in the examination room.

FOR EXAMINER'S USE ONLY					
QUESTION NUMBER	SCORE	INITIALS OF EXAMINER	QUESTION NUMBER	SCORE	INITIALS OF EXAMINER
1			14		
2			15		
3			16		
4			17		
5			18		
6			19		
7			20		
8			21		
9			22		
10			23		
11			24		
12			25		
13					
TOTAL					

This paper consists of 8 printed pages.

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SECTION A (60 MARKS)

1. Calculate the average of all prime numbers between 80 and 100

2. Express $0.\dot{4}\dot{0}\dot{5}$ as a fraction in its lowest term.

3. Find the value of k and q, if $x^2 + 8x + q = (x + k)^2$.

4. A wire of 48 cm long is bent to form a square. What is the length of the side of the square?

5. Write 1259, in standard form correct to 2 significant figures.

6. Given that log 2 = 0.3010 and log 3 = 0.4771. Evaluate log 1.5

7. A man can paint a door in 1¼ hours. How long will he take to paint 18 doors?

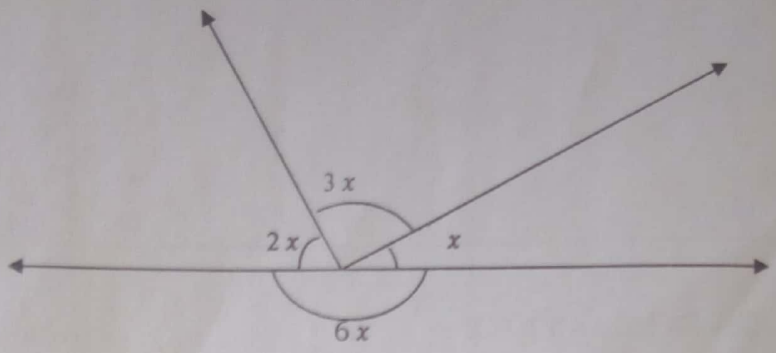
8. Given that $a*b = ab + 3b - 2a$, find p if $5*p = 20$

9. If $a^{2n} = 8$, evaluate $2a^{6n} + 100$

10. How many subsets are there in a set having three elements?

11. Two families shared equally 800 kilograms of rice. How many grams did each family get?

12. Find x in degrees in the following figure (figure not drawn to scale).



13. Write the algebraic expression $x - 2(y + x) + 3y$ in a simple form and state the coefficients of x and y.

14. A business woman borrowed Tshs 5,000,000. from a bank. The bank charged an interest of 15% per annum on the principal. How much interest did she pay at the end of two years?

15. Solve for x, given that $\frac{x+5}{2} - (3x - 5) = \frac{1}{3}$

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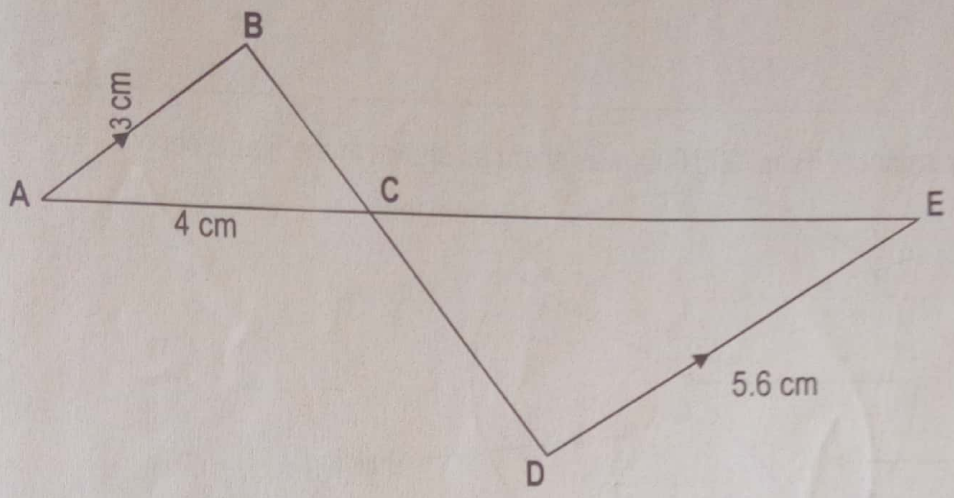
16. From the following figure, prove that ΔABC is similar to ΔEDC.



17. A ladder which is 13 m long rests against a wall such that its top is 5 m up the wall. Calculate the distance between the foot of a ladder and the wall.

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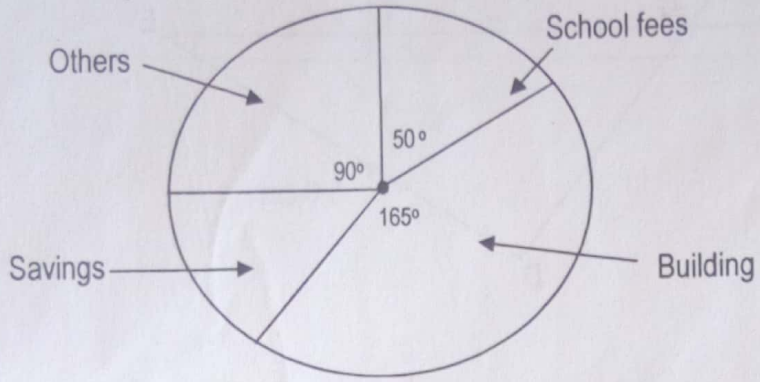
18. A company got a profit of Tshs 67,459,551 after selling its products this year. How much did the company get to the nearest hundreds?

19. Juma's monthly salary of Tshs. 900,000. was spent as shown in the figure below:



How much money did he spend on Savings?

20. Rationalize the denominator of the expression $\frac{4\sqrt{3}}{\sqrt{5}+\sqrt{3}}$

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SECTION B (40 MARKS)

21. Use a mathematical table to compute $\frac{608.7 \times \sqrt[3]{6.734}}{\sqrt{71.63}}$

Your answer must be in two decimal places.

22. The angles of elevation of two points which are 110 m apart from the top of a building are 46° and 63° respectively. Calculate the height of the building in the nearest whole number.

23. By using completing the square method, solve $x^2 + 3x - 4 = 0$

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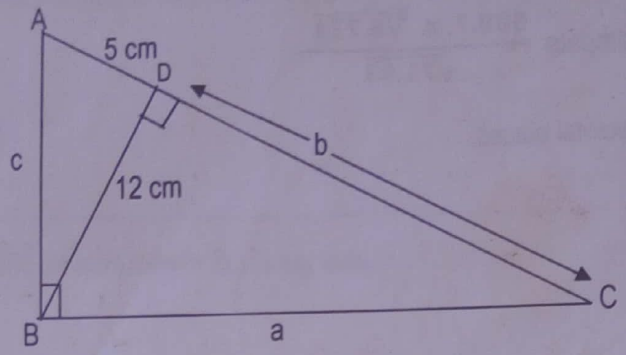
24. Study the figure below and determine the lengths of the sides shown in the figure.



25. The following table shows the marks of Physics test scored by 60 form two students at Kazamoyo Secondary School:

Marks (%)	35	40	45	50	55	60	65	70	75
Number of students	4	5	10	11	9	y	2	5	6

Find the value of y, the mark scored by fewest students and hence the number of students who failed the test if 45% was the pass mark.