THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND VOCATIONAL TRAINING
FORM TWO SECONDARY EDUCATION EXAMINATION, 2008

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 given answer booklet(s).
3. Write your examination number on every page of your answer booklet(s).
4. All writing must be in blue or black ink.
5. Mathematical tables, geometrical instruments and graph papers may be used where necessary.
6. Use $\pi = \frac{22}{7}$ where necessary.
7. Calculators and Cellphones are not allowed in the examination room.

This paper consists of 04 printed pages.

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SECTION A (60 MARKS)

1. Find the value of $(2670)^2 - (670)^2$

2. The circumference of a circular mirror is 110 cm. Find its diameter.

3. Subtract the sum of 4.69 and 1.743 from 8.72

4. One tea spoonful of sugar is added to every 80 g of coffee. How many tea spoonfuls of sugar will be added to 2 kg 400 g of coffee?

5. Find the sum of G.C.F and L.C.M of 12, 18 and 24

6. Mr Jumbe has a rectangular farm of opposite sides $^1/_4$ (q − 6) metres and 48 metres. Find the value of q.

7. Write 3388 as a product of prime factors.

8. $^1/_5$ of the total number of periods per week of a class timetable is given to English and $^1/_8$ to Mathematics. What fraction is left for the other subjects?

9. Calculate the following and express the final answer in the form of $a \times 10^n$ where, $1 \leq a < 10$ and n is any integer.
   $0.000321 \times 10^{-3} \times 200.1 \times 10^{-2}$

10. The Mathematics teacher of a certain school bought 124 pens to be distributed to 39 Form Two students who scored "A" in a Mathematics test. Estimate how many pens each student will get.

11. Find the value of t, if $2^t = {}^1/_4$

12. A map is drawn to a scale of 1:25000. The length of a river on the map is 20 cm. What is the actual length of the river in km?

13. Without using Mathematical tables, evaluate:

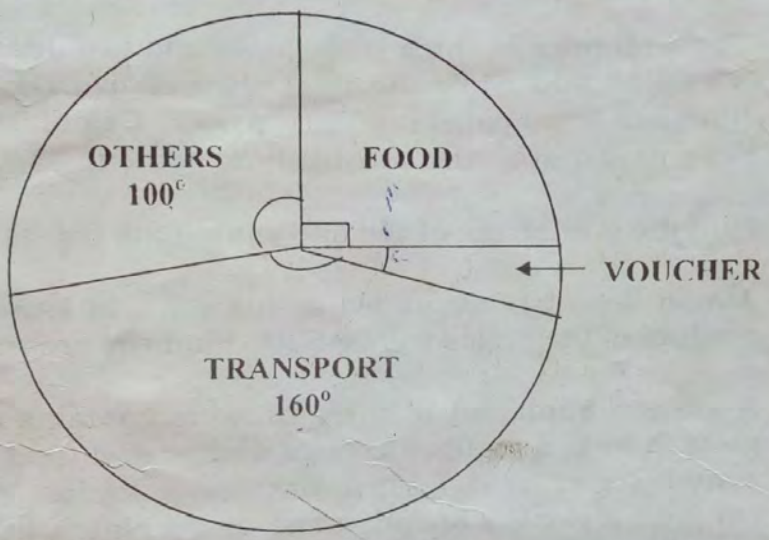
$$\frac{\tan 45^\circ}{\sin 30^\circ} + \frac{\cos 60^\circ}{\tan 45^\circ}$$

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14. Cake A contains some wheat flower and some sugar in the ratio of 3:5 while cake B contains some wheat flower and some sugar in the ratio of 3:4. From the two cakes, which one contains a greater ratio of the mixture?

15. Given that $m * p = mp + 2m - 3p$. Find the value of r if $5 * r = 20$

16. The following Pie chart shows the expenditure of Peter's monthly salary. How much money did he spend on voucher if his monthly salary was Tshs. 360,000?



17. The following table shows marks scored by Form Two students in a Mathematics test at Mtakuja Secondary School.

Marks (%)	40	45	50	55	60	65	70
Number of students	6	8	13	5	9	4	3

(i) If 50% was the pass mark, how many students passed the test?

(ii) What mark was scored by the majority of students?

18. The sides of a triangle are 2 cm, 3 cm and 4 cm. The length of the longest side of a similar triangle is 5 cm. Find the lengths of the other sides.

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19. Given that $x = 3\sqrt{2}$ and $y = 2\sqrt{3}$. Simplify $\frac{x^2+y^2}{x-y}$ in the form of $a\sqrt{c} + b\sqrt{d}$ where a, b, c and d are real numbers.

20. If the two sides of a right angled triangle are $(2k - 1)$ cm and k cm. Find the value of k if $\frac{1}{2}(4k + 2)$ cm is the hypotenuse.

SECTION B (40 MARKS)

21. The total price of three Daily News and two Jitambue News papers is Tshs. 1,900 while the total price of five Daily News and three Jitambue News papers is Tshs. 3,000. Calculate the price for each News paper. (Use the substitution method).

22. Find the y-intercept of the line joining the points (-5,3) and (3,2).

23. A man is four times as old as his son. In four years to come the product of their ages will be 520. Find the present age of the son.

24. A kitchen cupboard of three drawers contains a cup, a spoon, a glass, a fork, a plate, a knife, a saucer and a pot. The first drawer contains a cup, a glass, a fork and a knife. The second drawer contains a glass, a spoon, a fork and a plate while the third drawer contains a plate and a saucer. Represent the given information in a Venn diagram.

25. If $\tan\theta = \frac{5}{12}$, find the value of $\frac{\sin\theta - 2\cos\theta}{1 + \sin\theta}$.

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