**Candidate's No.……**

**THE UNITED REPUBLIC OF TANZANIA**
**MINISTRY OF EDUCATION AND CULTURE**
**FORM TWO SECONDARY EDUCATION EXAMINATIONS, 2003**

**0041** **BASIC MATHEMATICS**

**TIME: 2½ HOURS**

## INSTRUCTIONS

1. This paper consists of sections A and B.
2. Answer ALL questions in both sections.
3. Answers must be written in the answer sheets provided.
4. In section A write the answers only for each question, while in section B write both the working and the answer for each question.
5. Mathematical tables, graph papers and Mathematical instruments may be used where appropriate.
6. Remember to attach this examination paper with the answer sheets at the end of the examination.
7. Cell phones are not allowed in the examination room.

| FOR EXAMINER'S USE ONLY | | |
|---|---|---|
| **QUESTION NUMBER** | **SCORE** | **INITIALS OF EXAMINER** |
| 1 – 5 | | |
| 6 – 10 | | |
| 11 – 15 | | |
| 16 – 20 | | |
| 21 – 25 | | |
| **TOTAL** | | |

This paper consists of 05 printed pages.

## SECTION A (60 MARKS)

Answer all the questions. Answers only are to be written in the answer sheets provided.

1. (a) Calculate the sum of the GCF and LCM of 42, 45, 50.

   (b) $\frac{2}{5} + \frac{7}{8} - \frac{5}{6}$

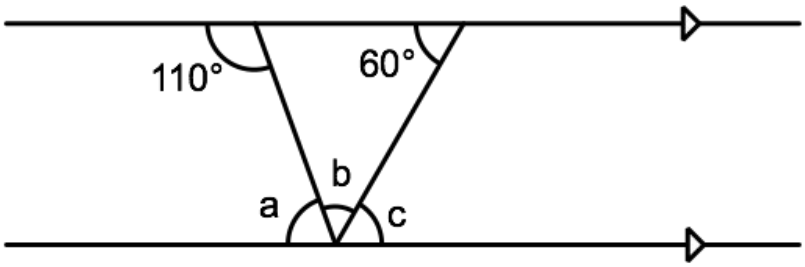
2. Convert (a) 256800 cm into km

   (b) 0.125 into percentage

3. Round off (a) 260743 to the nearest thousand

   (b) 0.04261 to three decimal places

4. In the figure that follows, find the values of a, b and c.




5. If $\log 2 = 0.30103$ and $\log 3 = 0.47712$, evaluate $\log 48$.

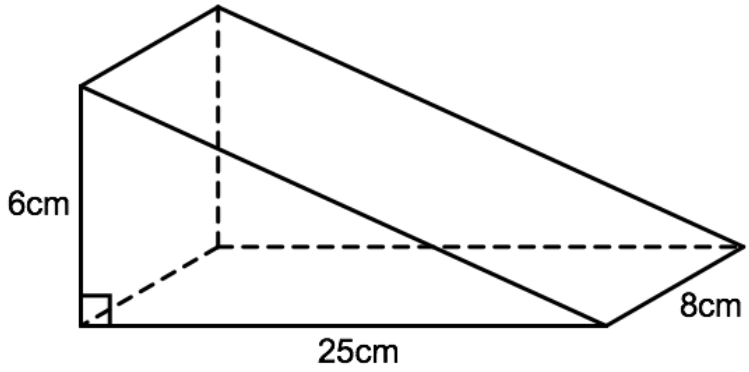
6. A piece of copper wire which is 56 cm long is bent to form a rectangle of area 171cm$^2$. Find the length and the width of this rectangle.

7. (a) Factorize the expression $3x^2 + 7x - 6$

   (b) $(10003)^2 - (9997)^2$

8. Express $\frac{3+\sqrt{5}}{2-\sqrt{5}}$ in the form $a + b\sqrt{c}$

9. Find the volume of the solid below




10. Find the difference between x and 80% of x, if x = 950.

11. Given that $\left(a+\frac{1}{a}\right)^2 = 14$, find the value of $a^2+\frac{1}{a^2}$

12. Make $A$ the subject of the formula $D = \frac{A-B}{A} - \frac{B}{CA}$

13. If $4\tan B = 3$ and $B$ is an acute angle, find the values of
    (a) $\cos B$
    (b) $4\tan B + 5\sin B$

14. If the interior angle of a regular polygon is 6½ times the exterior angle, how many sides does the polygon have?

15. If $P * Q$ is defined as $3P - Q$

    Evaluate $(5 * -3) * 2$

16. Three angles of a triangle are marked $2x$, $x+20^o$, and $x-40^o$, find the values of $x$.

17. John is six years older than Paul. If their ages add up to 30 years, find Paul's age.

18. A straight line passes through two points $A(-3,\ 6)$ and $B(-6,\ 3)$. Find the gradient of the line $AB$.

19. Find (a) the largest possible number and

(b) the smallest possible number by changing the order of the digits in 47986.

20. Write 0.0346 in standard form

## SECTION B (40 Marks)

Attempt all the questions in this section, showing all your working clearly for each question, in the answer sheets provided.

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

| Marks % | 40 | 45 | 50 | 55 | 60 | 65 | 70 |
|---|---|---|---|---|---|---|---|
| Number of Students | 6 | 8 | 13 | 5 | 9 | 4 | 5 |

(a) What was the lowest mark?
(b) What mark was scored by the most students?
(c) If 50% was the pass mark, how many students passed the test?
(d) What was the percentage of the students who scored at least 50 percent?

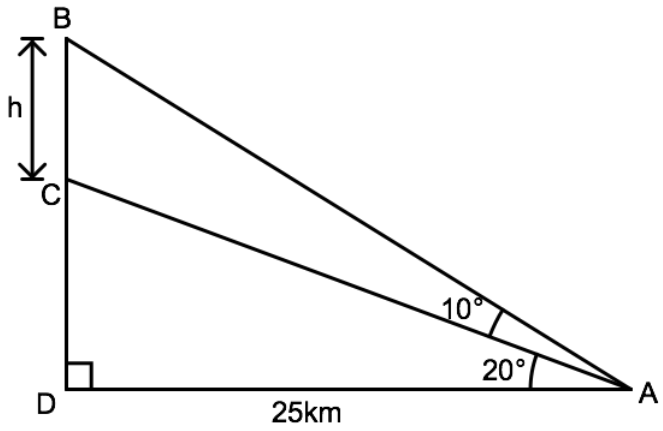
22. In a certain office, every man owns either a car or a lorry or both. 23 own lorries, 14 own cars, and 5 own both lorries and cars. How many men are there in that office?

23. Joyce used 1/3 of her money to buy sugar, 1/4 of it to buy soap and she remained with Shs. 35/=.

(a) How much money did she have at the beginning?

(b) How much money did she use to buy sugar?

24. Given the following figure, find the value of h, correct to one decimal place.




25. Use mathematical tables to evaluate the following mathematical expression

$$\frac{9804\times 23.19}{0.086\times 41750}$$