THE UNITED REPUBLIC OF TANZANIA
THEMI HILL SECONDARY SCHOOL
100 QUESTIONS
BASIC MATHEMATICS FORM II

1. Find the LCM of the following number: 96, 108, 120 and 150
2. How many integer Z are on the interval $-5 \leq Z \leq 20$?
3. Divide the LCM of the numbers 420, 264, 180 and 360 to the GCF.
4. List all common multiples of 8, 12 and 15 that are between 400 and 1000
5. Find the ratio of the GCF to the LCM of 12, 18 and 20.
6. Express 0.4414414 ……. As the ratio of two integers
7. Simplify: $4 + 3\frac{1}{4} \div 1\frac{1}{2} \times \frac{3}{4}$
8. Simplify: $\left(2 - 1\frac{5}{8} \div \frac{7}{8}\right) + (1\frac{1}{2} \div \frac{1}{4})$
9. Evaluate: $3\frac{1}{2} \div 21 + 3 \times 1\frac{1}{4} - \frac{5}{6}$
10. Write $1.2\overline{5}$ in form of $\frac{a}{b}$ where a and b are real numbers and b $\neq$ 0.
11. Convert the repeating decimal $0.5\overline{2}\,5$ to fraction
12. Given that x $= 3\overline{1}$ and y $= 0.2\overline{5}$, find the value of the following
    (a) x + y
    (b) x − y
13. Simplify: $\dfrac{5\frac{1}{3} \div \frac{1}{4}}{1 \div (3\frac{1}{4} - \frac{5}{8})}$
14. Write 0.8333… as fraction in the lowest term
15. By converting the repeating decimal $1.\overline{9}$ to fraction, show that $1.\overline{9} = 2$
16. What is the mass, in kilograms of 1500 packets each weighing 5hg, 9dag and 8g?
17. The length of 2.5 cm is what percentage of the length of 5 m?
18. Multiply: 16 dam 7 m 8 dm by 15
19. Divide the following and give your answer in meter:
    (23km 74dam 80dm) ÷6
20. Express the following capacities in litres
    (a) 2.5 cm^3
    (b) 100 dl
    (c) 3000ml
21. Write the 4.20098 into two decimal places
22. Approximate the following numbers to requested significant figure
    (a) 0.0078 one significant figure
    (b) 789.98 four significant figure
23. Write the number of significant figure
    (a) 10500
    (b) 0.00908
24. Estimate; 75.98 ×2.385
25. Approximate; 67.89 ÷19.98
26. Simplify; $\dfrac{125 \div 0.0025}{8 \div 0.02}$, write your answer to 2 decimal places
27. Convert $\dfrac{38}{8}$ to decimals, correct to two significant figure
28. Round off to hundredth each of the following numbers

(a) 9.986

(b) 0.0497

(c) 20.5778

29. If in a regular polygon, the ratio of the degree measure of the exterior to interior angle is 1 : 5, find the number of sides of the polygon

30. Find the number of sides of regular polygon whose each interior angle is 135^0

31. The degree measured of two supplementary angle are in the ratio 2 : 3. Find the degree measure of each angle.

32. Find the number of sides of the regular polygon whose exterior angle is 15^0

33. What is the degree measured of each interior angle of a regular polygon having 20 sides

34. Solve for x: $\frac{2x}{5} - \frac{x-2}{3} = \frac{x}{5}$

35. Find the solution of $|2x + 5| \leq 11$, present your answer on a number line

36. Simplify: $2\{3x - [2x - (3x + 1) + 5x]\}$

37. Find the range of the value of x the satisfy the inequality;
$2x - 3 \leq x - 1 \leq 3x + 2$

38. The age of the father now is three times that of his son. If in five years to come the age of father will be 5 years more than twice that of his son, find their present age.

39. Solve for p and q from
$$2(p - q) = \frac{1}{3}(2p - q) = 8$$

40. If the line $ax - 2y = 5$ and $2x - by = 8$ intersect at point (11, 3). Find the value of a and b.

41. Find $\frac{p}{q}$ if $\frac{3p + q}{5p + 2q} = 4$

42. (a) Write 45678 in words

43. List all even numbers between 212 and 222

44. Find the HCF of 24, 36 and 48

45. (a) A piece of cloth is $37\frac{1}{2}$cm long is cut into equal pieces each $1\frac{1}{2}$cm long. How many pieces can be obtained.

46. Write 0. 2 3 in form of $\frac{a}{b}$ where $b \neq 0$

47. (a) Doto scored 40 out of 80 in mathematics examination. What percentage was this?

48. One litre of cooking oil cost 700shs. Find the cost of 15 litres.

49. (a) Write 845 961 correct to **1 significant figure.**

50. Write $\frac{3}{4}$ in decimal form correctly to **1 decimal place**

51. Simplify: $(\frac{3a^2}{4b})(\frac{2}{a})^{-4}$

52. Solve for x; $125^x = 5$

53. Solve for y; $2^{8y} = 512$

54. Solve for x; $4^{5x} \div (2^{3x})^2 = 256$

55. Solve for x if $(3^{2x})^4 = 81$

56. Find the value of y such that;
$$5^{(y+1)} \times 125^{(3y+1)} = 25^{(y-2)}$$

57. Find the value of y for which
$$2^y \times 16 = \frac{1}{8^y}$$

58. Find the value of x and y given that
$$x^{(2y+1)} = x^{(3y-1)} = 243$$

59. Find the value of t in the equation
$$3^{2t}(4^t) = 6$$

60. Use the substitution of $y = 2^x$ to solve the equation
$$2^{2x+1} - 2^{x+1} + 1 = 2^x$$

61. Solve for x in the equation
$$9^{(x-3)} \times 81^{1-x} = 27^{-x}$$

factorize the following expression by spliting the middle term

62. $2x^2 + 3x + 1$

63. $3x^2 - 11x - 20$

Evaluate the following

64. $83.1^2 - 16.9^2$

65. $787^2 - 213^2$

75. 40006

76. 53.72

77. 885687

Give the decimal numerals for

81. 3.4×10^3

82. 4.7×10^0

83. 4.9×10^{-7}

If p = 3 x 10³ and q = 2 x 10³

What must be added in each of the following to make it a **perfect square**

66. $x^2 + 4x$

67. $x^2 - 6x$

Factorize each of the following by

INSPECTION METHOD

68. $5x^2 - 15x + 10$

69. $2x^2 - 16x + 24$

Factorize the following expression

70. $2a - 4b$

71. $12x - 8$

72. $2a - 4ab + 6ac$

Expand each of the following expression and write in form of

$ax^2 + bx + c$

73. $(x+1)(x+2)$

74. $(x-2)(x-3)$

Write the following number in standard (Scientific form)

78. 0.000321

79. 0.397

80. 9600000
each of the following:

84. 9.9×10^{-3}

85. 5.2×10^{-6}

86. 4.36×10^{-4}
work out the value of

87. p . q

88. p + q

89. p − q

90. p ÷ q

91. $\log_2 (x + 6) = 1$

92. $3\log x - \log 2 = \log 32$

93. $\log 2 = \log 5 - \log (2x + 3)$

94. $\log (x + 8) - \log (x - 1) = 1$

95. $\log (6y - 6) = \log (y + 1) + \log y$

96. $4\log 2 + 2\log 5 - \log 4$

97. $\log y + 2\log x = 3$, express y in term of x.

98. $\log_a x = 3\log_a 15 - 2\log_a 15$

99. If $x * y = \dfrac{1}{2}(x + y)$ find;

   a) $2 * 3$

   b) $(3 * 1) * 4$

   It log 2 = 0.3010, log 3 = 0.4771 and log 7 = 0.8551, find

100.   log 14

101.   log 49