PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
GEITA ADVENTIST SECONDARY SCHOOL
FORM TWO FITNESS TEST 01
BASIC MATHEMATIC

TIME2:30HRS FEB. 2020

1. a) If $2^{m+1} = 1$. Find the value of m.

   b) Given that $(3^x)(5^y) = 75$ find x and y.

   c) If $\left(\frac{2}{3}\right)^{x-1} = \left(\frac{3}{2}\right)^{3x-2}$ Find x

2. a) Rationalize the denominator $\frac{3+\sqrt{2}}{4-\sqrt{3}}$

   b) Simplify
   $\sqrt{25m+25n} - \sqrt{9m+9n}$

   c) If $\frac{5x+5y}{2x+y} = \frac{2}{5}$
   Find the value of $\frac{x}{y}$

3. a) Make L the subject if $T = 2\pi\sqrt{\frac{L}{g}}$

   b) Evaluate $255 - 255 \div 15 - 15$

   c) If $x^2 + kx + 16$ is a perfect square.
   Find the value of k.

4. a) If $\frac{1}{x} + \frac{1}{y} = 7$ and $\frac{2}{x} + \frac{3}{y} = 16$
   Find x and y

   b) Simplify $\frac{(0.136)^2 - (0.148)^2}{0.136+0.148}$

   c) If $ax^2 + bx + c = (x-3)(x+2)$
   Find the value of a, b and c

5. a) Given that $x * y = 3(1 - 2x + 3y)$
   Evaluate $2 * 4$.

   b) If $a + \frac{1}{a} = 13$ find the value of $a^2 + \frac{1}{a^2}$

   c) Factorize $1 - 4x^2$

6. a) If $x = 2\sqrt{2}$ and $y = 3\sqrt{3}$ find the value of $\frac{x^2+y^2}{x^2-y^2}$

   b) By completing the square, solve for x if $\sqrt{2x+7} = x + 2$

   c) The sides of a rectangle are $(2-\sqrt{3})cm$ and $(2+\sqrt{3})cm$ find its area.

7. a) If $x + y = 40$, and $x^2 + y^2 = 40$
   Evaluate xy

   b) Given that $p * q = \frac{p^2-q^2}{2}$. Find the value of n when $4 * n = 0$.

   c) Factorize completely
   $16(a-b)^2 - 9(a-3b)^2$

8. a) If $a^2 = 6$. Find a^4

   b) Use the quadratic formula to solve for x if $-2 = 6x^2 - 19x + 8$

   c) Make t the subject if
   $$S = ut + \frac{1}{2}at^2$$

9. a) If $ax^2 + bx + C = 0$ Show that $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

b) Given that $\frac{a - 2b}{a + 2b} = 2$. Evaluate $^a/_b$

c) If $M^{1/2} = 4$. Find M

10. a) Given that $\sqrt{3^{2x}} = 3$. find x.

b) If $n^2 = 2^4$. Find n

c) Two numbers differ by 7 their product is 60. Find the numbers.

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(11) Given that $T = 2\pi\sqrt{\frac{l}{g}}$, Calculate the value of $T = l$ when $T = 3.64$, $g = 9.8$, $\pi = 3.142$.

(12) Compute $\sqrt[3]{\frac{(0.01764)^2 \times 6467}{34.56 \times 0.00786}}$ Using logarithm

(13) Solve for m if $\log m = \log \frac{35}{8} - 4\log \frac{1}{2} + \log \frac{1}{7}$

(14) Find m when $\frac{\log m}{\log 3} = \frac{\log 16}{\log 4}$

(15) Simplify $2\log_6 3 + 3\log_6 12 + \log_6 8 - \log_6 24$

(16) If $\log X = \bar{8}.0524$. Evaluate $\log \sqrt[3]{X}$

(17) If $\log 2 = 0.3010$, $\log 3 = 0.4771$, $\log 5 = 0.6990$. Evaluate $\log 1.5$.