THE PROJECT FOR UPGRADING MATHEMATICS RESULTS.

GRADE 11 - MATHEMATICS.

LOGARITHMS.

(1) State the following in logarithmic form.

(i) $125 = 5^3$ (ii) $1024 = 2^{10}$ (iii) $216 = 6^3$

(2) State the following in index form.

(i) $\log_2 16 = 4$ (ii) $\log_8 64 = 2$ (iii) $\log_3 243 = 5$

(3) Find the value -

(i) $\log_2 128$ (ii) $\log_5 625$ (iii) $\log_{10} 1000$

(4) Write down the following logarithmic expressions as an addition or difference of logarithms.

(i) $\log_{10}(475 \times 23 \times 200)$ (ii) $\log_{10}\left(\frac{25 \cdot 3}{5 \cdot 7}\right)$

(iii) $\log_2\left(\frac{6 \times 7}{5}\right)$ (iv) $\log_2\left(\frac{2 \times 2 \cdot 6}{3 \cdot 25 \times 3}\right)$

(5) (i) If $\log_a (M)^r = r \log_a M$, write $\log_5 (1 \cdot 8)^3$ as a product of logarithms.

(ii) If $\log_a 2 = x$ and $\log_a 3 = y$, state $\log_a 162$ in terms of x and y.

(6) (i) $0.001 = 10^{-3}$. Find the value of $\lg \frac{1}{1000}$

(ii) $\frac{1}{3}\lg 8 + 3\lg 5 + 2\lg 2$

Find the value of this expression.

(7) Solve

(i) $2\lg 3 + \lg x - 2\lg 2 = \frac{1}{2}\lg 9$

(ii) $2\lg x = 2\lg 5 + 2\lg 2.$

(8) Simplify using logarithmic tables.

(i) $\left(\frac{38.2 \times 100.1}{80.7}\right)$

(ii) $\frac{(4.525)^2 \times 0.631}{26.82.}$

(iii) $\frac{\sqrt{32.7} \times 20}{1.05}$

(iv) $\frac{0.523 \times \sqrt{763.5}}{(1.35)^2}.$

(9) Find the area of the circle with radius 5.63 cm using logarithmic tables ($\pi = 3.142$).

(10)(i) The volume 'v' of a cylinder with cross sectional radius 'r' and height 'h' is given by $V = \pi r^2 h$. Find the volume of the cylinder when $r = 2.67$ cm and $h = 23.4$ cm. ($\pi = 3.14$).

(ii) $T = 2\pi\sqrt{\frac{l}{g}}$. Here $\pi = 3.142$ ~~and~~, $l = 73.8$ cm. and $g = 980\ \text{cms}^{-1}$. Find the value of 'T'.