KALYAN ACADEMY

BHARATH NAGAR, HYD-18

REAL NUMBERS | CLASS X | WORKSHEET-2

1. **Write the following using logarithms instead of powers**

   a) $8^2 = 64$ **b)** $3^5 = 243$ **c)** $10^3 = 0.001$ **d)** $3^{-2} = 1/9$

   e) $\sqrt{49} = 7$ **f)** $27^{2/3} = 9$ **h)** $32^{-2/5} = ¼$

2. **Determine the value of the following logarithms**

   a) $\log_4 64$ **b)** $\log_{1/8} 8$ **c)** $\log_b 4\sqrt{b^3}$ **d)** $\log_{10} 0.001$

3. **Each of the following expressions can be simplified to log N. Determine the value of N in each case. We have not explicitly written down the base. You can assume the base is 10, but the results are identical whichever base is used**

   a) $\log 12 - 2\log 2 + \log 3$ **b)** $5\log 2 + 4\log 3 - 3\log 4$ **c)** $\log 10 + 2\log 3 - \log 2$

4. **Use the law of logarithms to expand the followings**

   a) $\log \sqrt[3]{x}\sqrt{y} / z$ **b)** $\log 5x^3y /4$ **c)** $\log \sqrt{3x-5} / 7$ **d)** $\log_3 {}^{9/mn}$

5. **Use Euclid division lemma to show that cube of any positive integer is either of the form 9m, 9m + 1, or 9m + 8?**

6. **Show that any positive odd integer is of the form 6q + 1, or 6q + 3, or 6q + 5,where q is some integer?**

7. **Use Euclid's algorithm to find the HCF of a) 4052 and 12576 b) 86 and 255 c) 196 and 38220**

8. **Prove that square of any positive integer is of the form 3m or 3m+1 for some integer?**

9. **If the HCF of210 and 55 is expressible in the form 210X5 + 55y, Find y?**

10. **Prove that one of every three consecutive integers is divisible by 3?**