

King Fahd University of Petroleum and Minerals

Prep-Year Math Program

Math 002 - Term 132

Recitation (4.4)

Question 1: If $m > 0$, the expression $-\frac{2}{3}\log_5(5m^2) + \frac{1}{2}\log_5(25m^2) + \log_5\sqrt[3]{\frac{m}{5}}$ is equal to:

- A) 0 B) 1 C) 5 D) $\frac{5}{m}$ E) $\frac{m}{5}$

Question 2: If $\log x = a$, $\log y = b$ then write the expression $\log_x x^3 \sqrt{10y}$ in terms of a and b

Answer: $\frac{6a + 1 + b}{2a}$

Question 3: If $x > 0$, $y > 0$, $\frac{2\log x + 3\log y}{2\log\sqrt{18} - \log 6} =$

- a): $\log\left(\frac{x^2 y^3}{3}\right)$ b): $\log_9(x^2 y^3)$ c): $\log(x^2 y^3 - 3)$
 d): $\log_3(x^2 y^3)$ e): $\log_{12}(x^2 y^3)$

Question 4: If $x > 0$ and $y > 0$, then $-2 - 2\log_{\frac{1}{10}} y + \log x^2$ simplifies to

- A): $\log\left(\frac{xy}{10}\right)^2$ B): $\log(100x^2 y^2)$ c): $\log(x^2 - y^2 - 2)$
 d): $2\log\left(\frac{x}{y}\right)$ e): $\log(x^2 - y^2 - 100)$

Question 5: The following expression: $3\log_2 t - \frac{1}{3}\log_4 t^{12} + \frac{1}{2}\log_{1/2} t^6$, where $t > 0$ can be written as:

- (a): $\log_2\left(\frac{1}{t^2}\right)$ (b): $\log_2\left(\frac{1}{t^3}\right)$ (c): $\log_2(t^2)$ (d): $\log_2(\sqrt{t})$ (e): $\log_2\left(\frac{1}{t^4}\right)$