

King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math 002 - Term 142
Recitation (4.4)

Question1:

Find the value of: $\log_5 20 \cdot \log_{20} 60 \cdot \log_{60} 100 \cdot \log_{100} 125$

Answer: 3

Question2: Write the logarithmic expression: $2 - \log_3 x^2 - 8 \log_9 y + \log_{\sqrt{3}} xy$ as a single logarithm with a base of 3

Answer: $\log_3 \frac{9}{y^2}$

Question3: If $\log x = a$, $\log y = b$, then write the expression $\log_x (x^3 \sqrt{y})$ in terms of a and b .

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

Question4: For $x > 0$, $y > 0$, $\frac{2 \log x + 3 \log y}{2 \log \sqrt{18} - \log 6} =$

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) $\log_{12} (6xy)$

Question5: If $x > 0$ and $y > 0$, then $-2 - 2 \log_{\frac{1}{10}} y + \log x^2$ simplifies to

a) $\log (x^2 - y^2 - 2)$

b) $2 \log \left(\frac{x}{y} \right)$

c) $\log (100x^2 y^2)$

d) $\log \left(\frac{xy}{10} \right)^2$

e) $\log (x^2 - y^2 - 100)$