Logarithms quiz

Sunday, November 03, 2013
9:16 PM

① Write $2^3 = 8$ in log form. $\log_2 8 = 3$

② Write $\log_4 16 = 2$ in index form. $4^2 = 16$

③ Simplify $\log_3 4 + \log_3 8 = \log_3(4 \times 8) = \log_3(32)$

④ Simplify $\log_5 4 - \log_5 2 = \log_5\left(\frac{4}{2}\right) = \log_5 2$

⑤ Simplify $3\log_5 2 + \log_5 3 = \log_5(2^3) + \log_5(3)$
$= \log_5(8) + \log_5(3)$
$= \log_5 24$

⑥ $\log_3 27 = 2x$
Solve for x
$3^{2x} = 27 \quad 3^3 = 27 \quad 2x = 3 \quad x = \frac{3}{2}$

⑦ $2^x = 100$, solve for x

$\log(2^x) = \log(100)$
$x \log(2) = \log(100)$
$x = \frac{\log(100)}{\log(2)} = 6.644 \text{ (3dp)}$