

College Algebra Quiz 7

Name _____ Score _____ /10

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1. Supply all the steps required to show that $\ln\left(\sqrt{\frac{x^2}{y^3}}\right)$ can be written as $\ln(x) - \frac{3}{2}\ln(y)$

$$\ln\left(\sqrt{\frac{x^2}{y^3}}\right) = \ln\left(\frac{\sqrt{x^2}}{\sqrt{y^3}}\right) = \ln\left(\frac{x}{y^{\frac{3}{2}}}\right) = \ln(x) - \ln\left(y^{\frac{3}{2}}\right) = \ln(x) - \frac{3}{2}\ln(y)$$

2. Write the expression $e^x = 4$ in logarithmic form

$$x = \exp \circ \ln(e^x) = \ln(e^x) = \ln(4)$$

$$x = \ln(4)$$

3. Solve the equation $\ln(4x) = 0$. SHOW ALL STEPS

$$4x = \exp \circ \ln(4x) = \exp(\ln(4x)) = \exp(0) = e^0 = 1$$

$$4x = 1$$

$$x = \frac{1}{4}$$