

$$\#1 \quad (a) \log_2 x^2 + \log_2 y^3$$

$$= 2 \log_2 x + 3 \log_2 y$$

$$(b) \ln p^3 - \ln q^4$$

$$= 3 \ln p - 4 \ln q$$

$$(c) \underline{\log_{10}(m^2 n)} - \log_{10}(j \sqrt{k})$$

$$2 \log_{10} m + \log_{10} n - \left(\log_{10} j + \frac{1}{2} \log_{10} k \right)$$

$$2 \log_{10} m + \log_{10} n - \log_{10} j - \frac{1}{2} \log_{10} k$$

$$(2) (a) \log_2 x^4 + \log_2 y^5 = \log_2 (x^4 y^5)$$

$$(b) \ln p^2 - \ln q^4 = \ln \left(\frac{p^2}{q^4} \right)$$

$$(c) \log_{10} j^2 + \log_{10} k^3 - \log_{10} m^3 - \log_{10} n^2$$

$$= \log_{10} \left(\frac{j^2 k^3}{m^3 n^2} \right)$$

$$(3a) \log_2 x + \log_2 (x-2) = 3$$

log form $\log_2 (x^2 - 2x) = 3$

exp. form $2^3 = x^2 - 2x$

$$0 = x^2 - 2x - 8$$

$$0 = (x+2)(x-4)$$

~~$x = -2$~~ or $x = 4$

$$(3b) 2^x = 3^{x-1}$$

$$\ln 2^x = \ln 3^{x-1}$$

$$x \ln 2 = (x-1) \ln 3$$

$$\underline{x \ln 2} = \underline{x \ln 3} - \ln 3$$

$$x \ln 2 - x \ln 3 = -\ln 3$$

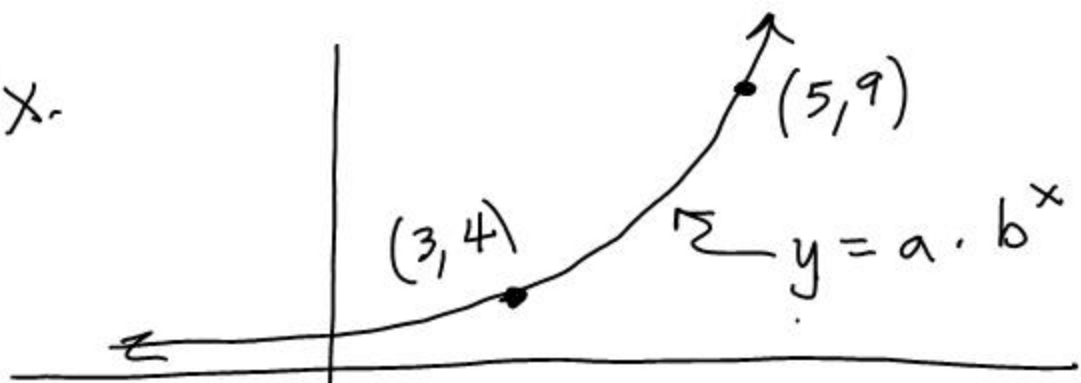
$$x (\ln 2 - \ln 3) = -\ln 3$$

$$x = \frac{-\ln 3}{\ln 2 - \ln 3}$$

2.71

$$x = \frac{\ln 3}{\ln 3 - \ln 2}$$

Ex.



$$\begin{aligned} (3,4) &: \begin{cases} 4 = a \cdot b^3 \rightarrow a = 4b^{-3} \\ 9 = a \cdot b^5 \end{cases} \\ (5,9) &: \end{aligned}$$

$$9 = 4b^{-3} \cdot b^5$$

$$9 = 4b^2$$

$$\frac{9}{4} = b^2$$

$$\boxed{b = \frac{3}{2}} \quad a = 4 \left(\frac{3}{2}\right)^{-3}$$

$$a = 4 \left(\frac{8}{27}\right)$$

$$\boxed{a = \frac{32}{27}}$$

$$y = \frac{32}{27} \left(\frac{3}{2}\right)^x$$

HW: quiz review

Ex. #1