

1. True or False?

- T F $\ln(x^2 + 3x + 2) = \ln x^2 + \ln 3x + \ln 2$
 T F $\ln(x^2 + 3x + 2) = \ln(x + 2) + \ln(x + 1)$
 T F $2^x = e^{x \ln 2}$
 T F $\sqrt{x + 3} = (x + 3)^{1/2}$
 T F $\frac{1}{x^4} = x^{-1/4}$
 T F $\sqrt{x^2 + 1} = x + 1$
 T F $\sqrt{x^2 + 4x + 4} = x + 2$
 T F $\frac{1}{x^2+4} = \frac{1}{x^2} + \frac{1}{4}$

2. "Simplify"

a.

$$\frac{1}{\left(\frac{4}{5}\right)^{-2}}$$

b.

$$\left(\frac{2xy^2}{5a^{-1}b^{-1}}\right)^{-1}$$

3. Solve each equation.

(a) $e^x = e^{x^2-2}$

(b) $4(3^x) = 20$

(c) $7 - 2e^x = 5$

(d) $\log_2(x - 5) = 3$

(e) $\ln(x - 5) = 3$

4. Find x .

a. $\log_2 32 = x$

b. $\log_2 \frac{1}{4} = x$

c. $\log_2 \sqrt[3]{2} = x$

d. $\log_2 \sqrt[3]{4} = x$

e. $\log_2 x = -3$

f. $\log_2 x = 4$

g. $\log_2 x = \frac{1}{2}$

h. $\log_2 x = -\frac{1}{3}$

5. Find $f^{-1}(x)$ – or explain why it doesn't exist.

(a)

$$f(x) = \frac{\sqrt{2x-5}}{8}$$

(b)

$$f(x) = \frac{2x-4}{5+3x}$$