

Name _____

Answers

Review 8.4-8.6 Worksheet

1. Expand: $\ln \frac{\sqrt[4]{x}}{y^2}$

$$\frac{1}{4} \ln x - 2 \ln y$$

2. Condense $\frac{1}{2} \log_7 x - 2 \log_7 4 + \log_7 y$

$$\log_7 \frac{y\sqrt{x}}{16}$$

3. Solve: $4^{2x+10} = 256$

$$\frac{(2x+10) \log 4}{\log 4} = \frac{\log 256}{\log 4}$$

$$\begin{array}{r} 2x+10 = 4 \\ -10 \quad -10 \\ \hline 2x = -6 \\ \frac{2x}{2} = \frac{-6}{2} \end{array}$$

$$\boxed{x = -3}$$

4. Solve: $5^x = 13$

$$\frac{(x) \log 5}{\log 5} = \frac{\log 13}{\log 5}$$

$$\boxed{x = 1.59}$$

5. Solve: $e^{3x-7} = 12$

$$\frac{+5+5}{+5+5}$$

$$e^{3x} = 17$$

$$\frac{(3x) \ln e}{\ln e} = \ln 17$$

$$\frac{3x}{3} = \frac{2.83}{3}$$

$$\boxed{x = .94}$$

6. Solve: $\ln x - \ln 8 = 4$

$$\ln \frac{x}{8} = 4$$

$$e^4 = \frac{x}{8}$$

$$\boxed{x = 436.79}$$

$$8 \cdot 54.598 = \frac{x}{8} \cdot 8$$

7. Solve: $\log_3 9 + 2 \log_3 x = 4$

$$\log_3 9x^2 = 4$$

$$3^4 = 9x^2$$

$$\frac{81}{9} = \frac{9x^2}{9}$$

$$\frac{9}{\sqrt{9}} = \frac{x^2}{\sqrt{9}}$$

$$\boxed{x = 3}$$

8. An investment of \$350 is worth \$429.20 after 6 years compounded continuously. What was the interest rate?

$$\frac{429.20}{350} = \frac{350 e^{6r}}{350}$$

$$1.2263 = e^{6r}$$

$$\ln 1.2263 = (6r) \ln e$$

$$\frac{.204}{6} = \frac{6r}{6}$$

$$\boxed{r = .034} \\ \boxed{3.4\%}$$