

Use a calculator to evaluate the expression. Round your result to three decimal places.

1. $150^{\sqrt{3}} = 5876.25$

2. $e^{-\frac{2}{3}} = 0.51$

3. $\log_{10} 211 = 2.32$

4. $\ln 2\pi = 1.84$

Rewrite the equation in exponential form.

5. $\log_5 125 = 3$

$$5^3 = 125$$

7. $\log_{49} 7 = \frac{1}{2}$

$$49^{1/2} = 7$$

Rewrite the equation in logarithmic form.

9. $9^{1/2} = 3$

$$\log_9 3 = \frac{1}{2}$$

11. $4^3 = 64$

$$\log_4 64 = 3$$

6. $\ln 1 = 0$

$$\log_e 1 = 0$$

$$e^0 = 1$$

8. $\log 10,000 = 4$
 $10^4 = 10,000$

10. $e^2 = 7.389$

$$\log_e 7.389 = 2$$

$$\ln 7.389 = 2$$

12. $10^{1.4} = 25.12$

$$\log 25.12 = 1.4$$

Solve the exponential equation. (round to 2 decimal places when necessary)

1. $4^{x-5} = \frac{1}{64}$

$$\log_4 \frac{1}{64} = x-5$$

$$\frac{\log \frac{1}{64}}{\log 4} = x-5$$

$$-3 = x-5$$

$$\boxed{x=2}$$

2. $\frac{3e^x}{3} = \frac{9}{3}$

$$e^x = 3$$

$$\log_e 3 = x$$

$$\ln 3 = x$$

$$\boxed{x=1.10}$$

3. $2^{3-2x} + 4 = 84$

$$2^{3-2x} = 80$$

$$\log_2 80 = 3-2x$$

$$\frac{\log 80}{\log 2} = 3-2x$$

$$6.32 = 3-2x$$

$$\frac{3.32}{-2} = \frac{-2x}{-2}$$

$$\boxed{x=-1.66}$$

4. $10^{x-3} = 10,000$

$$\log_{10} 10,000 = x-3$$

$$4 = x-3$$

$$\begin{array}{r} +3 \\ \hline \end{array} \boxed{x=7}$$

Solve the logarithmic equation. (round to 2 decimal places when necessary)

5. $\log_2 x = 6$

$$2^6 = x$$

$$\boxed{x=64}$$

6. $\frac{3 \ln x}{3} = \frac{15}{3}$

$$\ln x = 5$$

$$\log_e x = 5$$

$$e^5 = x$$

$$\boxed{x=148.41}$$

7. $\frac{5 \log(x+4)}{5} = \frac{12}{5}$

$$\log_{10}(x+4) = \frac{12}{5}$$

$$10^{12/5} = x+4$$

$$251.19 = x+4$$

$$\boxed{x=247.19}$$

8. $\frac{8 \log_{49} 3x}{8} = \frac{4}{8}$

$$\log_{49} 3x = \frac{1}{2}$$

$$49^{1/2} = 3x$$

$$\frac{7}{3} = \frac{3x}{3}$$

$$x = \frac{7}{3}$$

$$\text{or}$$
$$\boxed{x=2.3\bar{3}}$$