

Solve the exponential equation by expressing each side as a power of the same base and then equating exponents.

1) $5^x = 125$

1) _____

2) $3^{(2x + 1)} = 27$

2) _____

Solve the exponential equation by taking the natural logarithm of both sides. Express the solution set in terms of natural logarithms.

3) $10^x = 7.99$

3) _____

4) $e^{(x + 2)} = 8$

4) _____

Solve the exponential equation by taking the natural logarithm of both sides. Use a calculator to obtain a decimal approximation, correct to two decimal places, for the solution.

5) $e^{0.35x} = 34$

5) _____

Solve the logarithmic equation. Be sure to reject any value that produces the logarithm of a non-positive number in the original equation.

6) $\log_3 x = 4$

6) _____

7) $\log_2(x - 4) = -3$

7) _____

8) $\log_3(x + 1) + \log_3(x - 5) = 3$

8) _____

9) $\log_5(x + 1) - \log_5(x - 2) = 4$

9) _____

Solve the equation by isolating the natural logarithm and exponentiating both sides. Express the answer in terms of e.

10) $\ln \sqrt{x + 5} = 3$

10) _____

Solve the problem.

- 11) Find out how long it takes a \$3100 investment to double if it is invested at 8% compounded monthly. Round to the nearest tenth of a year. Use the formula

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

11) _____

Answer Key

Testname: 14.5_PRACTICEPP

- 1) {3}
- 2) {1}
- 3) $\left\{\frac{\ln 7.99}{\ln 10}\right\}$
- 4) $\ln 8 - 2$
- 5) {10.08}
- 6) {81}
- 7) $\left\{\frac{33}{8}\right\}$
- 8) {8}
- 9) $\left\{\frac{417}{208}\right\}$
- 10) $e^6 - 5$
- 11) 8.7 years