

Solve the following for x:

$$4^{x+1} = 4^{4x-2}$$

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

Property:

If  $b$  is a positive number not equal to 1, then  $b^x = b^y$  if and only if  $x = y$

*Example:  $2^3 = 2^x$  if and only if  $x = 3$ .*

Solve the following for x:

$$4^x = \left(\frac{1}{2}\right)^{5x-6}$$

$$9^{2x} = 27^{x-1}$$

$$81^{3-x} = \left(\frac{1}{3}\right)^{x-1}$$

$$10^{7x+1} = 1000^{3x-2}$$

Solve the following for x:

$$4^x = 11$$

Solve the following for x:

$$9^x = 49$$

$$12^x = 13$$

$$16^x = 67$$

$$3^x = 17$$

You deposit \$4000 in an account that pays 2.92% annual interest. How long will it be until you have more than \$6000 if the interest is compounded quarterly.

Compound interest formula:

$$P = \quad \quad \quad r =$$

$$n = \quad \quad \quad t =$$

$$A =$$

Property:

If  $b$ ,  $x$ , and  $y$  are positive numbers not equal to 1, then

$$\log_b x = \log_b y \text{ if and only if } x = y$$

*Example:*  $\log_2 7 = \log_2 x$  if and only if  $x = 7$

Solve the following for x:

$$\log_5(4x - 7) = \log_5(5 + x)$$



Solve the following for x:

$$\log 5x = \log(2x + 9)$$

$$\log_4(x + 6) - \log_4 x = \log_4 2$$

$$\ln(4x - 5) = \ln(2x - 1)$$

$$\log_5(10 - 4x) = \log_5(10 - 3x)$$

Solve the following for x:

$$\log_4 5x - 1 = 3$$

Solve the following for x:

$$\log 2 + \log x = 1$$

$$-6 \log_3(x - 3) = -24$$

$$-10 + \log_3(x + 3) = -10$$

$$-2 \log_5 7x = 2$$