

## Algebra 2 - Unit 2 Lesson 2: Two Step Equations

- Day 1: Basic Operations
  - Day 2: Radicals and Exponents
  - Day 3: Logarithms and Exponentials
- 

Refresher - Solve the following:

$$\log_2 x = 3$$

$$2^3 = x$$

$$x = 8$$

$$4^x = 35$$

$$\log_4 35 = x$$

Steps to solving an exponential equation:

1. Get your base by itself.
2. Convert to a logarithm and solve from there.

Solve:  $5^x + 2 = 25$   
 $-2 \quad -2$

$$5^x = 23$$

$$\log_5 23 = x$$

---

$$3 \cdot \frac{7^x}{3} = 12 \cdot 3$$

$$7^x = 36$$

$$\log_7 36 = x$$



Solving Logarithm Equations:

1. Get your logarithm by itself.
2. Convert to an exponential equation and solve from there.

Solve:  $\log_2 x - 4 = -1$   
+4    +4

$$\log_2 x = 3$$

$$2^3 = x$$

$$x = 8$$

$$\frac{5}{2} \cdot \frac{2}{5} \log_4 x = \frac{8}{1} \cdot \frac{5}{2}$$

$$\log_4 x = 20$$

$$4^{20} = x$$

Solve:  $\ln(x+4) = 2$

$$e^2 = x + 4$$

-4       -4

$$x = e^2 - 4$$

$$\log_2\left(\frac{7}{6}x\right) = -2$$

$$\frac{2^{-2}}{1}$$

↻

$$2^{-2} = \frac{7}{6}x$$

$$\frac{6}{7} \cdot \frac{1}{2^2} = \frac{6}{7} \cdot \frac{7}{6}x$$

$$\frac{6}{28} = x$$

$$\frac{6}{28} = \frac{3}{14}$$

$$x = \frac{3}{14}$$

Homework:

U2 L2 Day 3 Worksheet