

Name: \_\_\_\_\_

**Aim: How do we solve logarithmic equations?**

**I. Do Now:**

1. Evaluate:

$$\log_{16} 8$$

2. Solve and check:

$$3(4^x) - 2 = 22$$

3. Evaluate:

(a)  $10^{\log 1000}$

(b)  $10^{\log(\frac{1}{100})}$

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**II. Key Theorem:**

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**III. Motivation:** How do we solve the equation  $\log x = 6$ ?

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**IV. Solve and check:**

4.  $2\log 5x = 4$

5.  $5 + 2\log x = 4$

6.  $\log\left(\log\frac{x}{8}\right) = 0$

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7.  $\log(x+2) + \log(x-1) = 1$

8.  $\log_4 x - \log_4(x-1) = \frac{1}{2}$

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9.  $\log_4(2x+1) = \log_4(x+2) - \log_4 3$

10.  $\log_2(x^2 - 6x) = 3 + \log_2(1-x)$

(if time)

11.  $\log(x-3) + \log(x-2) = \log(2x+24)$