

Names: \_\_\_\_\_

**Activity #9: Exponentials and Logs**

**College Algebra**

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1. Solve the following equation.

$$3^{4x-1} = 27^{x+\frac{2}{3}}$$

2. Solve the following equation using logarithms.

$$3 = 2^{x+1}$$

3. Solve for  $x$ . Round your solution to four decimal places.

$$3^x = 12$$

4. Solve for  $x$ . Round your solution to four decimal places.

$$(1 + x)^3 = 5$$

5. Solve for  $x$ . Round your solution to four decimal places.

$$2 \left( 1 + \frac{x}{12} \right)^{360} = 9.5$$

6. Use properties of logarithms to write the following expression using only a single log.

$$\log_2(5) + 3 \cdot \log_2(x)$$

7. Use properties of logarithms to write the following expression using only a single log.

$$\log(2) + \log(x) + \log(y) - \log(z)$$

8. Use properties of logarithms to write the following expression using only a single log.

$$\frac{1}{2}(\log(x) + \log(y)) - \log(z)$$