Solving Exponential Equations

Name _____

Date _____ Period _____

Two methods to solving an exponential equation

Method 1: Express both sides with the same base, set exponents equal to one another and solve for x.

Method 2: Take the log of both sides, use the power property to solve for x.

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$3^{x+4} = 27^{x}$

$4^{2x} = 8^{x+2}$

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$$\left(\frac{1}{4}\right)^{-x} = 32^{x-3} \qquad \left(\frac{1}{5}\right)^{3x+1} = 625^{-x}$$

Method 2: Take the log of both sides, use the power property to solve for x.

$$2^{x} = 9 \qquad 3^{4x} = 11$$

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$$4^{x+2} = 7$$

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$$2^{2x-1} = 5^{x}$$

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