

## Solving Exponential Equations – F.LE.A.2

<p>1.</p> <p>The solution set of <math>2^{x^2+2x} = 2^{-1}</math> is</p> <p>1) {1}</p> <p>2) {-1}</p> <p>3) {-1,1}</p> <p>4) {}</p>	<p>2.</p> <p>The solution set of <math>4^{x^2+4x} = 2^{-6}</math> is</p> <p>1) {1,3}</p> <p>2) {-1,3}</p> <p>3) {-1,-3}</p> <p>4) {1,-3}</p>
<p>3.</p> <p>Solve for <math>x</math>: <math>\frac{1}{16} = 2^{3x-1}</math></p>	<p>4.</p> <p>Using logarithms, solve the equation <math>2^{3x} = 7</math> for <math>x</math> to the <i>nearest tenth</i>.</p>
<p>5.</p> <p>Solve for <math>x</math>: <math>4^{(3x+5)} = 16</math></p>	<p>6.</p> <p>Solve <math>e^{4x} = 12</math> algebraically for <math>x</math>, rounded to the <i>nearest hundredth</i>.</p>
<p>7.</p> <p>If <math>ae^{bt} = c</math>, where <math>a</math>, <math>b</math>, and <math>c</math> are positive, then <math>t</math> equals</p> <p>1) <math>\ln\left(\frac{c}{ab}\right)</math></p> <p>2) <math>\ln\left(\frac{cb}{a}\right)</math></p> <p>3) <math>\frac{\ln\left(\frac{c}{a}\right)}{b}</math></p> <p>4) <math>\frac{\ln\left(\frac{c}{a}\right)}{\ln b}</math></p>	<p>8.</p> <p>Which expression is <i>not</i> a solution to the equation <math>2^t = \sqrt{10}</math>?</p> <p>1) <math>\frac{1}{2} \log_2 10</math></p> <p>2) <math>\log_2 \sqrt{10}</math></p> <p>3) <math>\log_4 10</math></p> <p>4) <math>\log_{10} 4</math></p>
<p>9.</p> <p>What is the solution to <math>8(2^{x+3}) = 48</math>?</p> <p>1) <math>x = \frac{\ln 6}{\ln 2} - 3</math></p> <p>2) <math>x = 0</math></p> <p>3) <math>x = \frac{\ln 48}{\ln 16} - 3</math></p> <p>4) <math>x = \ln 4 - 3</math></p>	<p>10.</p> <p>The solution of <math>87e^{0.3x} = 5918</math>, to the <i>nearest thousandth</i>, is</p> <p>1) 0.583</p> <p>2) 1.945</p> <p>3) 4.220</p> <p>4) 14.066</p>

## Solving Logarithmic Equations - F.LE.A.2

<p>1.</p> <p>If <math>\log_b x = y</math>, then <math>x</math> equals</p> <ol style="list-style-type: none"> <li>1) <math>y \cdot b</math></li> <li>2) <math>\frac{y}{b}</math></li> <li>3) <math>y^b</math></li> <li>4) <math>b^y</math></li> </ol>	<p>2.</p> <p>The equation <math>\log_a x = y</math> where <math>x &gt; 0</math> and <math>a &gt; 1</math> is equivalent to</p> <ol style="list-style-type: none"> <li>1) <math>x^y = a</math></li> <li>2) <math>y^a = x</math></li> <li>3) <math>a^y = x</math></li> <li>4) <math>a^x = y</math></li> </ol>
<p>3.</p> <p>If <math>\log_5 x = 2</math>, what is the value of <math>\sqrt{x}</math>?</p> <ol style="list-style-type: none"> <li>1) <math>2^5</math></li> <li>2) <math>\sqrt{5}</math></li> <li>3) 5</li> <li>4) 25</li> </ol>	<p>4.</p> <p>If <math>\log_2(x^2 - 1) = \log_2 8</math>, then the solution set for <math>x</math> is</p> <ol style="list-style-type: none"> <li>1) <math>\{3, -3\}</math></li> <li>2) <math>\{-3\}</math></li> <li>3) <math>\{3\}</math></li> <li>4) <math>\{\}</math></li> </ol>
<p>5.</p> <p>Solve for <math>x</math>: <math>\frac{1}{2} \log(x + 2) = 2</math></p>	<p>6.</p> <p>Solve algebraically for all values of <math>x</math>:  <math>\log_{(x+4)}(17x - 4) = 2</math></p>
<p>7.</p> <p>The solution of <math>\log_x 8 = 2</math> is</p> <ol style="list-style-type: none"> <li>1) <math>x &lt; 2</math></li> <li>2) <math>2 &lt; x &lt; 3</math></li> <li>3) <math>3 &lt; x &lt; 4</math></li> <li>4) <math>x &gt; 4</math></li> </ol>	<p>8.</p> <p>If <math>\log_4 x = 2.5</math> and <math>\log_y 125 = -\frac{3}{2}</math>, find the numerical value of <math>\frac{x}{y}</math>, in simplest form.</p>
<p>9.</p> <p>What is the solution of the equation <math>2 \log_4(5x) = 3</math>?</p> <p>1) 6.4   2) 2.56   3) <math>\frac{9}{5}</math>   4) <math>\frac{8}{5}</math></p>	<p>10.</p> <p>Solve algebraically for <math>x</math>: <math>\log_{x+3} \frac{x^3 + x - 2}{x} = 2</math></p>