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| <p>1. Solve for the <i>exact</i> value of <math>x</math>.</p> $25^x = \frac{1}{125^{x+1}}$       | <p>2. Solve for <math>x</math>. Round answer to 3 decimal places.</p> $20^{3x+1} - 5 = 35$   |
| <p>3. Solve for <math>x</math>. Round decimal answer to 3 decimal places.</p> $5e^{-x+4} = 22$   | <p>4. Evaluate <math>\log_2 31</math>. Round answer to 3 decimal places.</p>   |
| <p>5. Solve for <math>x</math>. Give answer in terms of natural logs.</p> $e^{2x} - e^x - 6 = 0$ | <p>6. Solve for <math>x</math>. Round decimal answer to 3 decimal places. (Hint: let <math>y = 3^x</math>)</p> $3^{2x} - 7 \cdot 3^x + 12 = 0$ |

Answers: 1.  $\frac{-3}{5}$     2. .077    3. 2.518    4. 4.954    5.  $\ln 3$     6. 1, 1.262

Graph. Show asymptotes and specify domain and range. For # 7-10, specify as growth, decay, or neither. Plot at least 3 points, including x-intercept or y-intercept.

7.  $y = -3(2)^x + 2$

8.  $y = 2 \cdot \left(\frac{1}{3}\right)^{x+1} - 2$

9.  $y = 2e^{-x} + 3$

10.  $y = \frac{1}{2}e^{x-1} - 1$

11.  $y = \log_{\sqrt{2}}(x+3)$

12.  $y = \ln x - 2$