

More problems for section 5.1 of *Essentials of Precalculus with Calculus Previews* by Zill and Dewar, 6e.

1. Find an exponential function  $f(x) = Cb^x$  whose graph passes through the given points.

- a.  $(0, 3), (2, 12)$       b.  $(0, -5), (1, -20)$       c.  $(0, 2), (1/3, 1)$       d.  $(0, 6), (2, 2)$   
e.  $(0, -2), (3, -14)$       f.  $(1, 10), (2, 25)$       g.  $(-1, 8), (1, 9/2)$       h.  $(3, -10), (6, -50)$

2. Find the solution set to the inequality. You may want to picture the graph of the exponential function in question.

- a.  $3^x < 27$       b.  $3^{x+2} \geq \frac{1}{27}$       c.  $2^{4x} \leq 2\sqrt{2}$       d.  $5^{x+1} > \frac{1}{125}$   
e.  $\left(\frac{1}{3}\right)^{x+2} < \sqrt[5]{9}$       f.  $\left(\frac{1}{7}\right)^{2x-1} \leq \sqrt[3]{49}$       g.  $\left(\frac{2}{5}\right)^{2x+1} \geq 1$       h.  $\left(\frac{1}{3}\right)^{1-4x} < \frac{3}{\sqrt{3}}$

Answers

- 1a.  $3 \cdot 2^x$     1b.  $-5 \cdot 4^x$     1c.  $2 \cdot (1/8)^x$     1d.  $6 \cdot 3^{-x/2}$     1e.  $-2 \cdot 7^{x/3}$     1f.  $4 \cdot (5/2)^x$     1g.  $6 \cdot (3/4)^x$     1h.  $-2 \cdot 5^{x/3}$   
2a.  $(-\infty, 3)$     2b.  $[-5, \infty)$     2c.  $(-\infty, 3/8]$     2d.  $(-4, \infty)$     2e.  $(-12/5, \infty)$     2f.  $[1/6, \infty)$     2g.  $(-\infty, -1/2]$     2h.  $(-\infty, 3/8]$