

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. $(-\infty, 3/8]$