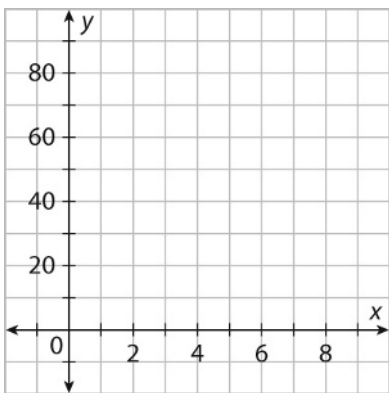


LESSON **16-2** **Solving Exponential Equations**

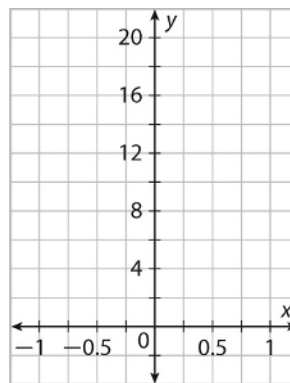
Practice and Problem Solving: A/B

Solve each equation by graphing. If necessary, round to the nearest thousandth.

1. $5e^{x-3} = 75$



2. $8e^{-8x} + 8 = 17$



Solve each equation algebraically. If necessary, round to the nearest thousandth.

3. $5^{2x} = 20$

4. $12^{2x-8} = 15$

5. $2^{x+6} = 4$

6. $16^{5x} = 64^{x+7}$

7. $243^{0.2x} = 81^{x+5}$

8. $25^x = 125^{x-2}$

9. $\left(\frac{1}{2}\right)^x = 16^2$

10. $\left(\frac{1}{32}\right)^{2x} = 64$

11. $\left(\frac{1}{27}\right)^{x-6} = 27$

12. $6e^{10x-8} - 4 = 34$

13. $8(10)^{7x-6} - 8 = 59$

14. $-6e^{-4x-1} + 3 = -37$

Solve.

15. The population of a small farming community is declining at a rate of 7% per year. The decline can be expressed by the exponential equation $P = C(1 - 0.07)^t$, where P is the population after t years and C is the current population. If the population was 8500 in 2004, when will the population be less than 6000?