NAME _____ DATE _____ PERIOD _____

15-1 Practice

Limits

Evaluate each limit.

1. $\lim_{x \to 3} (x^2 + 3x - 8)$

2. $\lim_{x \to -2} (2x + 7)$

3. $\lim_{x \to -6} \frac{x^2 - 36}{x + 6}$

4. $\lim_{x \to 2} \frac{x^2 - 5x + 6}{x - 2}$

5. $\lim_{x \to 2} \frac{x - 2}{x^2 - 4}$

6. $\lim_{x \to 3} \frac{x^2 - 9}{x^3 - 27}$

7. $\lim_{x \to 0} \frac{(3 + x)^2 - 9}{x}$

8. $\lim_{x \to 4} \sqrt{x^2 - 2x + 1}$

9. $\lim_{x \to -3} \frac{2x^3 + 6x^2 - x - 3}{x + 3}$

10. $\lim_{x \to 1} \frac{x^2 - x}{2x^2 + 5x - 7}$

11. $\lim_{x \to 0} \frac{\sin 2x}{x}$

12. $\lim_{x \to 0} \frac{1 - \cos x}{x}$

13. ***Biology*** The number of cells in a culture doubles every 5 hours. The initial hourly growth rate is represented by $\lim_{t \to 0} \frac{2^{\left(\frac{t}{5}\right)} - 1}{t}$, where t is the time in hours. Use a calculator to approximate the value of this limit to the nearest hundredth. What is the initial hourly growth rate? Write your answer as a percent.