WS_Limits Algebraically 4.1 Calculus Name_____
Date_____Bell____

Evaluate the following limits. **Must show work!** Reduce answer when possible.
Remember to write the limit notation as you work.

1. $\lim\limits_{x \to 3} \frac{x-3}{x^3-27}$ = _____

2. $\lim\limits_{x \to 3} \frac{\frac{1}{x}+\frac{1}{3}}{x-3}$ = _____

3. $\lim\limits_{x \to -4} \frac{\frac{1}{4}-\frac{1}{x}}{4+x}$ = _____

4. $\lim\limits_{x \to -2} \frac{x^2-4}{x^2-6x-16}$ = _____

5. $\lim\limits_{x \to 16} \frac{\sqrt{x}-4}{x-16}$ = _____

6. $\lim\limits_{x \to 0} \frac{x}{\sqrt{x+9}-3}$ = _____

Without Graphing Evaluate Given:

$$g(x) = \begin{cases} |x| & , \ x \leq -1 \\ 2x-1 & , \ -1 < x \leq 1 \\ x^2 & , \ x > 1 \end{cases}$$

7. $\lim\limits_{x \to 1^+} g(x)$

8. $\lim\limits_{x \to 1^-} g(x)$

9. $\lim\limits_{x \to 1} g(x)$

10. $\lim\limits_{x \to 5} g(x)$

11. $\lim\limits_{x \to -1^+} g(x)$

12. $\lim\limits_{x \to -1^-} g(x)$

13. $\lim\limits_{x \to -1} g(x)$

14. $\lim\limits_{x \to 0} g(x)$