College Calculus (Conway)　　　　　　　　　　Name_____

2.3 - Limits of Piecewise and Absolute Value Functions　　Date_____

Evaluate each limit.

1) $\displaystyle\lim_{x \to -3} f(x)$, $f(x) = \begin{cases} -\dfrac{x}{2} - \dfrac{7}{2}, & x < -3 \\ -x - 5, & x \ge -3 \end{cases}$

2) $\displaystyle\lim_{x \to -2} \dfrac{5|x+2|}{x+2}$

3) $\displaystyle\lim_{x \to 6^-} \left(|x-6| - 3 \right)$

4) $\displaystyle\lim_{x \to -1} f(x)$, $f(x) = \begin{cases} 2x + 6, & x < -1 \\ \dfrac{x}{2} + 3, & x \ge -1 \end{cases}$

5) $\displaystyle\lim_{x \to -6} f(x)$, $f(x) = \begin{cases} -2x - 15, & x \le -6 \\ -3, & x > -6 \end{cases}$

6) $\displaystyle\lim_{x \to -7^+} \dfrac{5|-x-7|}{-x-7}$

　　　-1-

7) $\lim\limits_{x \to -4^+} \dfrac{5x + 20}{|x + 4|}$

8) $\lim\limits_{x \to 0^+} \left(|x| + 7\right)$

9) $\lim\limits_{x \to 5} f(x), \; f(x) = \begin{cases} -x + 3, & x \le 5 \\ -x^2 + 12x - 37, & x > 5 \end{cases}$

10) $\lim\limits_{x \to -3} \dfrac{-2x - 6}{|-x - 3|}$

11) $\lim\limits_{x \to 6} f(x), \; f(x) = \begin{cases} 0, & x < 6 \\ x^2 - 8x + 15, & x \ge 6 \end{cases}$

12) $\lim\limits_{x \to 2^-} \dfrac{3|x - 2|}{x - 2}$

Answers to 2.3 - Limits of Piecewise and Absolute Value Functions

1) -2

2) Does not exist.

3) -3

4) Does not exist.

5) -3

6) -5

7) 5

8) 7

9) -2

10) Does not exist.

11) Does not exist.

12) -3