

Assignment

Date _____ Period _____

Evaluate each limit.

1) $\lim_{x \rightarrow -1} \sqrt{-x + 5}$

2) $\lim_{x \rightarrow 1} f(x), f(x) = \begin{cases} 2x, & x \leq 1 \\ -x^2, & x > 1 \end{cases}$

3) $\lim_{x \rightarrow 1^-} \frac{4|-x + 1|}{-x + 1}$

4) $\lim_{x \rightarrow -1} f(x), f(x) = \begin{cases} x^2 + 2x - 2, & x \neq -1 \\ 2, & x = -1 \end{cases}$

$$5) \lim_{x \rightarrow -1} -\frac{x+1}{x^2+3x+2}$$

$$6) \lim_{x \rightarrow 0} \frac{\frac{1}{2+x} - \frac{1}{2}}{x}$$

$$7) \lim_{x \rightarrow 1} \frac{\sqrt{x+3} - 2}{x-1}$$

$$8) \lim_{x \rightarrow 0} \frac{1 - \sin\left(\frac{\pi}{2} + x\right)}{x}$$

$$9) \lim_{x \rightarrow 0} \frac{\tan(x)}{2x}$$

$$10) \lim_{x \rightarrow -2^+} -\frac{2}{x^2-4}$$

$$11) \lim_{x \rightarrow -\infty} \left(\frac{x^2}{2} - x - \frac{7}{2} \right)$$

$$12) \lim_{x \rightarrow -\infty} -e^{-3x}$$

$$13) \lim_{x \rightarrow \infty} (e^{-4x} - 1)$$

$$14) \lim_{x \rightarrow \infty} \left(\frac{x^3}{e^x} - 2 \right)$$

$$15) \lim_{x \rightarrow \infty} \frac{2x + 2}{\sqrt{3x^2 + 2}}$$

$$16) \lim_{x \rightarrow -\infty} -\frac{x^2}{2x + 1}$$

$$17) \lim_{x \rightarrow \infty} -\frac{x}{x-2}$$

$$18) \lim_{x \rightarrow \infty} -\frac{4}{x^2+2}$$

Assignment

Date _____ Period _____

Evaluate each limit.

1) $\lim_{x \rightarrow -1} \sqrt{-x + 5}$

 $\sqrt{6}$

2) $\lim_{x \rightarrow 1} f(x), f(x) = \begin{cases} 2x, & x \leq 1 \\ -x^2, & x > 1 \end{cases}$

Does not exist.

3) $\lim_{x \rightarrow 1^-} \frac{4|-x + 1|}{-x + 1}$

4

4) $\lim_{x \rightarrow -1} f(x), f(x) = \begin{cases} x^2 + 2x - 2, & x \neq -1 \\ 2, & x = -1 \end{cases}$

-3

$$5) \lim_{x \rightarrow -1} -\frac{x+1}{x^2+3x+2}$$

-1

$$6) \lim_{x \rightarrow 0} \frac{\frac{1}{2+x} - \frac{1}{2}}{x}$$

$-\frac{1}{4}$

$$7) \lim_{x \rightarrow 1} \frac{\sqrt{x+3} - 2}{x-1}$$

$\frac{1}{4}$

$$8) \lim_{x \rightarrow 0} \frac{1 - \sin\left(\frac{\pi}{2} + x\right)}{x}$$

0

$$9) \lim_{x \rightarrow 0} \frac{\tan(x)}{2x}$$

$\frac{1}{2}$

$$10) \lim_{x \rightarrow -2^+} -\frac{2}{x^2-4}$$

∞

$$11) \lim_{x \rightarrow -\infty} \left(\frac{x^2}{2} - x - \frac{7}{2} \right)$$

∞

$$12) \lim_{x \rightarrow -\infty} -e^{-3x}$$

$-\infty$

$$13) \lim_{x \rightarrow \infty} (e^{-4x} - 1)$$

-1

$$14) \lim_{x \rightarrow \infty} \left(\frac{x^3}{e^x} - 2 \right)$$

-2

$$15) \lim_{x \rightarrow \infty} \frac{2x + 2}{\sqrt{3x^2 + 2}}$$

$\frac{2\sqrt{3}}{3}$

$$16) \lim_{x \rightarrow -\infty} -\frac{x^2}{2x + 1}$$

∞

$$17) \lim_{x \rightarrow \infty} -\frac{x}{x-2}$$

-1

$$18) \lim_{x \rightarrow \infty} -\frac{4}{x^2+2}$$

0