

Jefferson Township Public Schools

Summer Assignment for students entering AP Calculus AB

**This assignment will count as a formative assessment and
is due on the second class meeting of the school year.**

AP Calculus AB Summer Assignment

Evaluate each limit.

1) $\lim_{x \rightarrow 2} (-x + 3)$

2) $\lim_{x \rightarrow -2} (x - 2)$

3) $\lim_{x \rightarrow -2^+} f(x), f(x) = \begin{cases} -x^2 - 8x - 16, & x < -2 \\ 2x + 5, & x \geq -2 \end{cases}$

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

5) $\lim_{x \rightarrow 0} \frac{\tan(5x)}{2x}$

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

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

8) $\lim_{x \rightarrow 2} \frac{x - 2}{\sqrt{x - 1} - 1}$

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

10) $\lim_{x \rightarrow 0} \frac{\sin x}{x}$

11) $\lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x - 2}$

12) $\lim_{x \rightarrow 4} \frac{\sqrt{x} - 2}{x - 4}$

$$13) \lim_{x \rightarrow 3^-} \frac{3}{x^2 - 9}$$

$$14) \lim_{x \rightarrow 2^-} \frac{4x}{x - 2}$$

$$15) \lim_{x \rightarrow 3^+} -\frac{x}{x - 3}$$

$$16) \lim_{x \rightarrow 3^+} \frac{x - 2}{x^2 - 5x + 6}$$

$$17) \lim_{x \rightarrow \infty} -\frac{2x^2}{x^2 - 4}$$

$$18) \lim_{x \rightarrow \infty} \frac{16x}{x^2 + 16}$$

$$19) \lim_{x \rightarrow -\infty} -\frac{3x^4}{4x^2 - 4}$$

$$20) \lim_{x \rightarrow \infty} (-x^5 + 4x^3 - 3x + 2)$$