

Math 135, Calculus 1, Fall 2020

Weekly Quiz 10-14

Show all work: clearly indicate your answer and the reasoning used to arrive at the answer. Unsupported answers may not receive full credit.

Question 1. Evaluate $\lim_{x \rightarrow 7} \frac{x^2 + 2x - 63}{x - 7}$, or show that it does not exist.

$$= \lim_{x \rightarrow 7} \frac{\cancel{(x-7)}(x+9)}{\cancel{(x-7)}} = \lim_{x \rightarrow 7} (x+9)$$

$$= 7 + 9 = \boxed{16}$$

Question 2. Evaluate $\lim_{x \rightarrow -\infty} \frac{3x^4 + 9x + 4}{5x - 7}$. Be as specific as possible.

$$= \lim_{x \rightarrow -\infty} \frac{3x^4/x + 9x/x + 4/x}{5x/x - 7/x} = \lim_{x \rightarrow -\infty} \frac{3x^3 + 9 + 4/x}{5 - 7/x}$$

$$= \frac{-\infty + 9 + 0}{5 - 0} = \boxed{-\infty}$$