

Due: Friday, 24 September 2025

Directions: The work you submit should be entirely your own. Provide a clear proof for the following limit statements.

1. Prove the following:

$$\lim_{x \rightarrow \infty} \frac{1}{(x - 2)^2} = 0$$

2. Prove the following:

$$\lim_{x \rightarrow \infty} \frac{1}{2x + 5} = 0$$

3. Prove the following:

$$\lim_{x \rightarrow 2^+} \frac{7x}{3x - 6} = \infty$$

4. Prove the following:

$$\lim_{x \rightarrow \infty} \frac{3x}{5x - 7} = \frac{3}{5}$$

5. Prove the following:

$$\lim_{x \rightarrow \infty} x^2 - 3x = \infty$$