
Complete the following problems. Show all work to receive full credit.

1. Find $\lim_{x \rightarrow 0^+} \frac{1}{3x}$

$$\lim_{x \rightarrow 0^+} \frac{1}{3x} = \infty$$

2. Find $\lim_{x \rightarrow 0^-} \frac{x^2 - 3x + 2}{x^3 - 4x}$

$$\begin{aligned} \lim_{x \rightarrow 0^-} \frac{x^2 - 3x + 2}{x^3 - 4x} &= \lim_{x \rightarrow 0^-} \frac{(x-2)(x-1)}{x(x-2)(x+2)} \\ &= \lim_{x \rightarrow 0^-} \frac{x-1}{x(x+2)} \\ &= \frac{-}{-(+)} \\ &= \infty \end{aligned}$$

3. Find $\lim_{x \rightarrow 2^+} \frac{x^2 - 3x + 2}{x^3 - 4x}$

$$\begin{aligned} \lim_{x \rightarrow 2^+} \frac{x^2 - 3x + 2}{x^3 - 4x} &= \lim_{x \rightarrow 2^+} \frac{(x-2)(x-1)}{x(x-2)(x+2)} \\ &= \lim_{x \rightarrow 2^+} \frac{x-1}{x(x+2)} \\ &= \frac{2-1}{2(2+2)} \\ &= \frac{1}{2 \cdot 4} \\ &= \frac{1}{8} \end{aligned}$$