

Activity 0: Limits at Infinity

March 29 2021

Evaluate the following.

$$\begin{aligned} 1. \quad & \lim_{x \rightarrow \infty} x^3 - 4x^2 + 5 \\ & = \infty \end{aligned}$$

$$\begin{aligned} 2. \quad & \lim_{x \rightarrow \infty} \frac{x^3}{4x^2 + 3} \\ & = \infty \end{aligned}$$

$$\begin{aligned} 3. \quad & \lim_{x \rightarrow -\infty} \frac{-5}{x^3} - 7 + \frac{8}{x} \\ & = -7 \end{aligned}$$

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

$$\begin{aligned} 5. \quad & \lim_{x \rightarrow \infty} \frac{5x + \sin x}{x} \\ & = 5 \end{aligned}$$

$$\begin{aligned} 6. \quad & \lim_{x \rightarrow \infty} \frac{\sqrt{3x^2 + 6}}{5 - 2x} \\ & = \frac{\sqrt{3}}{2} \end{aligned}$$

$$\begin{aligned} 7. \quad & \lim_{t \rightarrow -\infty} \frac{e^{6t} - 4e^{-6t}}{2e^{3t} - 5e^{-9t} + e^{-3t}} \\ & = 0 \end{aligned}$$