

Answer on Question #61374 – Math – Calculus

Question

3) Evaluate the limit

$$\lim_{x \rightarrow \infty} \frac{12x^4 - x^2 + 8x - 5}{x^4 + 7}$$

- a) 13
- b) 23
- c) 12
- d) 34

Solution

$$\begin{aligned} \lim_{x \rightarrow \infty} \frac{12x^4 - x^2 + 8x - 5}{x^4 + 7} &= \{ \text{divide the numerator and denominator by } x^4 \} = \\ &= \lim_{x \rightarrow \infty} \frac{12 - 1/x^2 + 8/x^3 - 5/x^4}{1 + 7/x^4} = \frac{12 - 0 + 0 - 0}{1 + 0} = \frac{12}{1} = 12 \end{aligned}$$

Answer: c) 12.

Question

4) Evaluate the limit

$$\lim_{x \rightarrow -\infty} \frac{x^2 - 5x - 92}{x^4 + 3x^3}$$

- a) 4
- b) 2
- c) 0
- d) 1

Solution

$$\begin{aligned} \lim_{x \rightarrow -\infty} \frac{x^2 - 5x - 92}{x^4 + 3x^3} &= \{ \text{divide the numerator and denominator by } x^4 \} = \\ &= \lim_{x \rightarrow -\infty} \frac{1/x^2 - 5/x^3 - 92/x^4}{1 + 3/x} = \frac{0 - 0 - 0}{1 + 0} = \frac{0}{1} = 0 \end{aligned}$$

Answer: c) 0.