

Limits

Moderate

Rational functions

1.
$$\lim_{x \rightarrow \infty} \left(\frac{4x^2 + x^6}{1 - 5x^3} \right)$$

2.
$$\lim_{x \rightarrow \infty} \left(\frac{5x^3 + 1}{x^2 - 4} \right)$$

3.
$$\lim_{x \rightarrow \infty} \left(\frac{1 - x^2}{x^3 - x + 1} \right)$$

4.
$$\lim_{x \rightarrow \infty} \left(\frac{x + x^3 + x^5}{1 - x^2 + x^4} \right)$$

5.
$$\lim_{x \rightarrow -\infty} \left(\frac{12 - 6x^2}{3x + x^2} \right)$$

6.
$$\lim_{x \rightarrow \infty} \left(\frac{x}{x + 1} \right)$$

7.
$$\lim_{x \rightarrow \infty} \left(\frac{x}{x^2 + 1} \right)$$

8.
$$\lim_{x \rightarrow -\infty} \left(\frac{7x^2 - 9}{4x + 3} \right)$$

9.
$$\lim_{x \rightarrow \infty} \left(\frac{3x^2 + 20x}{2x^4 + 3x^3 - 29} \right)$$

10.
$$\lim_{x \rightarrow \infty} \left(\frac{x + x^3 + x^5}{1 - x^2 + x^4} \right)$$

Answers

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1. $-\infty$

2. ∞

3. 0

4. ∞

5. -6

6. 1

7. 0

8. $-\infty$

9. 0

10. ∞