

ANSWER ON QUESTION #55857 – Math – CALCULUS

6. For the polynomial $f(x) = 1 - 2x + 5x^4$

as

$$x \rightarrow \infty, f(x) \rightarrow -\infty$$

A: True

B: False

Answer: B, because $5x^4 \rightarrow \infty$ as $x \rightarrow \infty$, hence $1 - 2x + 5x^4 \rightarrow \infty$ as $x \rightarrow \infty$.

7. For the polynomial $f(x) = 2x^4 - 8x^2 + 7x - 25$

as

$$x \rightarrow \infty, f(x) \rightarrow \infty$$

A: True

B: False

Answer: A, because $2x^4 \rightarrow \infty$ as $x \rightarrow \infty$, hence $2x^4 - 8x^2 + 7x - 25 \rightarrow \infty$ as $x \rightarrow \infty$.

8. What is the maximum number of turns in the graph of.

$$f(x) = 2x^3 - 2x^2 + 7x - 25$$

Answer: 2

Solution. We need to find the maximum number of times the slope of the curve changes. A maximum number of turns in the graph of $f(x)$ is equal to the degree of polynomial $f(x)$ minus 1. Therefore a maximum number of turns in the graph of $f(x)$ is equal to $3-1=2$.

9. Find $f(1)$ if

$$f(x) = 2x^3 + x^2 - 3x - 1$$

Answer: -1

Solution:

$$f(1) = 2 \times 1^3 + 1^2 - 3 \times 1 - 1 = 2 + 1 - 3 - 1 = -1$$

10. Find $f(-2)$ if

$$f(x) = -x^3 + 2x^2 + x - 1$$

Answer: 13

Solution: $f(-2) = -(-2)^3 + 2 \times (-2)^2 - 2 - 1 = 8 + 8 - 2 - 1 = 13$