

Answer on Question #56625–Math -Algebra

1. Find the remainder of the division problem shown below.

$$(x^4 + x^3 - 3x - 3) \div (x - 2)$$

Solution

$$f(x) = x^4 + x^3 - 3x - 3$$

$$f(2) = 2^4 + 2^3 - 3 \cdot 2 - 3 = 16 + 8 - 6 - 3 = 15.$$

Answer: 15.

2. Is the term $(x + 2)$ a factor of the polynomial shown below?

$$f(x) = x^3 - 10x^2 + 27x - 12$$

- A. Yes, the remainder is 0.
- B. Yes, the remainder is -114.
- C. No, but the remainder is 0.
- D. No, but the remainder is -114.

Solution

If the term $(x + 2)$ is a factor of the $f(x)$ the remainder is 0. So, B. and C. are wrong answers. Now find the remainder:

$$f(-2) = (-2)^3 - 10 \cdot (-2)^2 + 27 \cdot (-2) - 12 = -8 - 40 - 54 - 12 = -114$$

Answer: D. No, but the remainder is -114.