

**Answer on Question #56452 – Math – Algebra**

5. The point (2,0) lies on the graph of

$$P(x) = x^4 - 2x^3 - x + 2$$

A: True

B: False

**Solution**

$$P(2) = 2^4 - 2 \cdot (2^3) - 2 + 2 = 2^4 - 2^4 - 2 + 2 = 0.$$

The point (2,0) lies on the graph of  $P(x) = x^4 - 2x^3 - x + 2$ .

**Answer:** A: True.

7. What is the remainder for the division problem shown?

$$\begin{array}{r} -1 \ 3 \ -4 \ 2 \ -1 \\ -3 \ 7 \ -9 \\ \hline 3 \ -7 \ 9 \ -10 \end{array}$$

$$-3 \ 7 \ -9$$

$$3 \ -7 \ 9 \ -10$$

A: 3

B: No remainder

C: -10

D: -1

**Solution**

We do not understand the meaning of those numbers.

8.  $x + 3$  is a factor of  $p(x) = x^3 - 7x^2 + 15x - 9$

A: True

B: False

**Solution**

**Method 1**

$$p(x) = x^3 - 7x^2 + 15x - 9 = (x+3)(x^2 - 10x + 45) - 144,$$

so  $x + 3$  is not factor of  $p(x) = x^3 - 7x^2 + 15x - 9$ .

B: False.

**Method 2**

Compute  $p(-3) = (-3)^3 - 7(-3)^2 + 15(-3) - 9 = -144 \neq 0$ , hence  $x + 3$  is not factor of  $p(x) = x^3 - 7x^2 + 15x - 9$ .

**Answer:** B: False..

9. If  $f(c) = 0$ , which of the following statements must be true?

A: The point (0,c) lies on the graph of  $f(x)$

B:  $x - c$  is a factor of  $f(x)$

C: The point (-c,0) lies on the graph of  $f(x)$

D:  $x + c$  divides evenly into  $f(x)$

**Answer:** B:  $x - c$  is a factor of  $f(x)$ .

10. If  $x - 1$  is a factor of  $p(x) = x^3 - 5x^2 + 7x - 3$ , which of the following represents the complete factorization for  $p(x)$ ?

A:  $(x-3)(x-1)(x-1)$

B:  $(x-1)(x+3)(x+1)$

C:  $(x-3)(x-1)(x+1)$

D:  $(x-3)(x+3)(x-1)$

### Solution

$$p(x) = x^3 - 5x^2 + 7x - 3 = (x-1)(x^2 - 4x + 3) = (x-1)(x-1)(x-3).$$

**Answer:** A:  $(x-3)(x-1)(x-1)$ .