

Answer on Question #56101 - Math – Algebra

Task 1. Which of the following expressions is this one equivalent to?

$$\frac{4x^3 + 2x^2 + x + 3}{x + 2}$$

A: $4x^3 - 6x + 13 + \frac{23}{x+2}$

B: $4x^2 - 6x + 13 - \frac{23}{x+2}$

C: $4x - 6 + \frac{13}{x+2}$

D: $4x^2 + 13 - \frac{2}{x+2}$

Solution

$$\frac{(4x^2 - 6x + 13)(x + 2) - 23}{x + 2} = \frac{4x^3 + 2x^2 + x + 3}{x + 2}$$

Answer: B

Task 2. Which of the following expressions is this one equivalent to?

$(x^4 - 2x^3 + x - 2)$ divided by $(x^3 + 1)$

A: $x^2 - x + 1$

B: $x^2 + 1$

C: $x^2 + 3x + 2$

D: $x - 2$

Solution

$$(x - 2)(x^3 + 1) = x^4 - 2x^3 + x - 2$$

Answer: D

Task 3. What is the remainder when $x^2 + 3$ is divided by $x - 1$?

Solution

$$\frac{x^2 + 3}{x - 1} = \frac{x^2 - 1 + 4}{x - 1} = \frac{x^2 - 1}{x - 1} + \frac{4}{x - 1} = x + 1 + \frac{4}{x - 1}$$

Answer: 4.

Task 4. Evaluate $f(1)$ using substitution: $f(x) = 2x^3 - 3x^2 - 18x + 8$

Solution

$$f(1) = 2 \cdot 1^3 - 3 \cdot 1^2 - 18 \cdot 1 + 8 = -11$$

Answer: -11.

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

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

A: True

B: False

Solution

$$2^4 - 2 \cdot 2^3 - 2 + 2 = 16 - 16 - 2 + 2 = 0$$

Answer: A – true.