

Math Worksheet: Polynomial Division (2)

Find the remainder of each division.

$$\text{A. } \frac{x^3 - x + 2}{x - 2} = \frac{P(x)}{Q(x)}$$

Remainder Theorem :

$$\text{remainder} = P(2) = 2^3 - 2 + 2 = \underline{\underline{8}}$$

$$\text{B. } \frac{x^4 - x^3 + 2x^2 - x + 3}{-x + 3} = \frac{-x^4 + x^3 - 2x^2 + x - 3}{x - 3} = \frac{P(x)}{Q(x)}$$

remainder theorem.

$$\text{remainder} = P(3) = -72$$

hence

$$\frac{P(x)}{Q(x)} = \frac{-72}{x - 3} + W(x) = \frac{72}{-x + 3} + W(x)$$

$$\text{remainder} = \underline{\underline{72}}$$

$$\text{C. } \frac{2x^2 - x + 3}{2x + 1}$$

$$= \frac{2(x^2 - \frac{x}{2} + \frac{3}{2})}{2(x + \frac{1}{2})} = \frac{x^2 - \frac{x}{2} + \frac{3}{2}}{x + \frac{1}{2}} = \frac{P(x)}{Q(x)}$$

remainder theorem :

$$\text{remainder} = P(-\frac{1}{2}) = 2$$

$$\text{hence } \frac{P(x)}{Q(x)} = \frac{2}{x + \frac{1}{2}} + W(x) \quad \text{Free from } \text{www.analyze-math.com}$$

$$= \frac{2 \cdot 2}{2(x + \frac{1}{2})} + W(x)$$

$$= \frac{4}{2x + 1} + W(x) ; \text{ remainder} = \underline{\underline{4}}$$