

8. For each dividend, determine the value of k if the remainder is 3.

→ that's the polynomial

a) $(x^3 + 4x^2 - x + k) \div (x - 1)$

b) $(x^3 + x^2 + kx - 15) \div (x - 2)$

c) $(x^3 + kx^2 + x + 5) \div (x + 2)$

d) $(kx^3 + 3x + 1) \div (x + 2)$

similar }

"The Remainder Theorem"

a) div by $(x-1) \rightarrow \frac{P(x)}{x-1} \Rightarrow P(1)$ is the Remainder = a constant

here given as 3.

$$P(1) = (1^3 + 4 \cdot 1^2 - 1 + k)$$

$$= 1 + 4 - 1 + k = k + 4$$

given

$$= 3$$

$$\Rightarrow k = 3 - 4 = -1$$

$$\boxed{k = -1}$$