October 20, 2017

3.3 #53) $P(x) = x^3 - 3x^2 + 3x - 1$, $c = 1$ yes

* Factor Theorem: c is a zero of P if and only if $x - c$ is a factor of $P(x)$.

$x - 1 \;|\; x^3 - 3x^2 + 3x - 1$

① $\frac{x^3}{x} = x^2$ → $x^3 - x^2$

② $\frac{-2x^2}{x} = -2x$ → $-2x^2 + 2x$

③ $\frac{x}{x} = 1$ → $x - 1$

Remainder 0 ← $R(x)$

$x^3 - 3x^2 + 3x - 1 = (x-1)(x^2 - 2x + 1) + 0$

$= x^3 - 2x^2 + x - x^2 + 2x - 1$

$= x^3 - 3x^2 + 3x - 1$ ✓

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$f(x) = x^2 - x - 12$

$0 = (x-4)(x+3)$ (a, b)

$c = 4$, $c = -3$

* Zero Factor Theorem

① $x - 4 = 0$, $x = 4$

② $x + 3 = 0$, $x = -3$

$ab = 0$

① $a = 0$

② $b = 0$

③ a & $b = 0$

$f(4) = (4)^2 - (4) - 12$

$= 16 - 4 - 12$

$= 12 - 12$

$= 0$

$x - 4 \;|\; x^2 - x - 12$

① $\frac{x^2}{x} = x$ → $x^2 - 4x$

② $\frac{3x}{x} = 3$ → $3x - 12$

Remainder 0 ← $R(x)$

ans: $\frac{D(x)}{(x-4)(x+3)} + 0$

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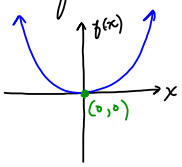
$f(x) = x^2 = 1(1 \cdot x - 0)^2 + 0$



General Form

$a(bx - h)^2 + k$

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