April 11, 2016

Remainder Theorem?

If $\frac{P(x)}{x-c}$, then $P(c)$ = a remainder

Factor Theorem

If $P(c) = 0$ Remainder!

then $x-c$ is a factor of $P(x)$

Apr 11-10:58 AM

Rational Zeros

$\frac{p}{q}$ = factors of the constant term / factors of the leading coefficient term

$2x^3 - 4x^2 + 10$

$p = 10$ & $q = 2$

$10 = \pm 1, \pm 2, \pm 5, \pm 10$

$2 = \pm 1, \pm 2$

$\frac{p}{q} = \pm\frac{1}{1}, \pm\frac{2}{1}, \pm\frac{5}{1}, \pm\frac{10}{1}, \pm\frac{1}{2}, \pm\frac{2}{2}, \pm\frac{5}{2}, \pm\frac{10}{2}$

$\frac{p}{q} = \pm 1, \pm 2, \pm 5, \pm 10, \pm\frac{1}{2}, \pm\frac{5}{2}$

Apr 11-11:09 AM

1 | 2 −4 0 10 → 2 −2 −2 → 2 −2 −2 −8

3 | 2 −4 0 10 → 10 30 → 2 6 30

2 | 2 −4 0 10 → 4 0 0 → 2 0 0 10

$\frac{1}{2}$ | 2 −4 0 10 → 1 −2 −3 → 2 −3 −3

−10 | 2 −4 0 10 → −20 240 → 2 −24 240

$-\frac{1}{2}$ | 2 −4 0 10 → −1 5 −5 → 2 −5 5

$-\frac{1}{2} \cdot \frac{5}{2} = \frac{-5}{4}$

$\frac{5}{2}$ | 2 −4 0 10 → 10 15 $\frac{75}{2}$ → 2 6 15

$-\frac{5}{2}$ | 2 −4 0 10 → 5 $\frac{45}{2}$ → 2 −9 $\frac{45}{2}$

$\frac{5}{2} \cdot \frac{15}{1} = \frac{75}{2}$

$-\frac{5}{2} \cdot \frac{45}{2} = -\frac{225}{4}$

Apr 11-11:17 AM

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

$p = 2 = \pm 1, \pm 2$

$q = 1 = \pm 1$

$\frac{p}{q} = \pm 1, \pm 2$

$P(1) = 0$ & $P(-2) = 0$

$c = 1$ $c = -2$

$(x-1)(x^2+x-2)$ factorable?

$(x+2)(x-1)$

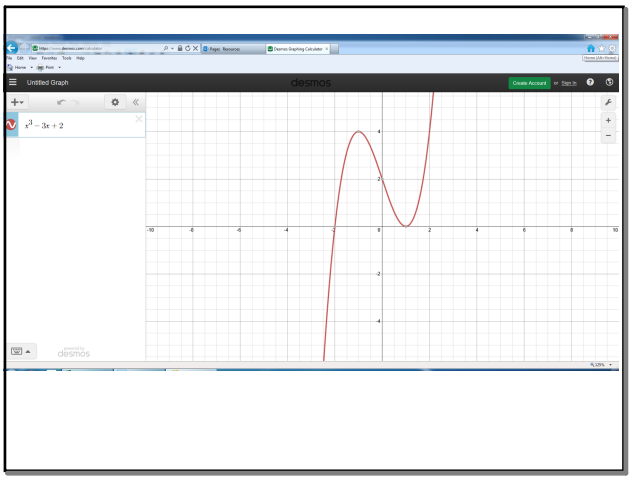
$x^2 - x + 2x - 2$

$x^2 + x - 2$ ✓

$P(x) = (x-1)(x+2)(x-1)$

$x = 1, x = 2$

Apr 11-11:27 AM



Apr 11-11:52 AM