

3.3 #47) $f(x) = 3x^4 - 8x^3 - 14x^2 + 31x + 6$
 $C = -2, 3$

Factor Theorem
 If c is a zero of f , then $x - c$ is a factor of $f(x)$.

$x - (-2)$ $\begin{array}{r|rrrr} 3x^3 & -14x^2 & +31x & +6 \\ x+2 & \underline{3x^3} & \underline{-8x^2} & \underline{+14x} & \underline{+3} \\ & & -14x^2 & +31x & +6 \end{array}$

$x + 2$ $\begin{array}{r|rrrr} 3x^2 & -14x & +14x & +3 \\ x+2 & \underline{3x^2} & \underline{-8x} & \underline{+14x} & \underline{+6} \\ & & -14x & +31x & +6 \end{array}$

$f(x) = (x+2)(3x^2 - 14x + 3)$

$x - 3$ $\begin{array}{r|rrrr} 3x & -5x & -1 \\ x-3 & \underline{3x^2} & \underline{-14x} & \underline{+3} \\ & & -5x & +3 \end{array}$

① $\frac{3x^2}{x} = 3x$

② $\frac{-5x}{x} = -5x$

③ $\frac{-1}{x} = -\frac{1}{x}$

$f(x) = (x+2)(x-3)(3x^2 - 5x - 1)$

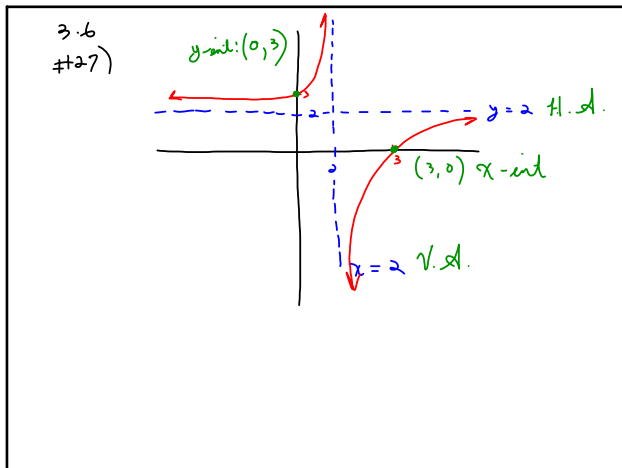
① $C = -2$
 ② $C = 3$
 ③ $C = \frac{5 + \sqrt{17}}{6}$
 ④ $C = \frac{5 - \sqrt{17}}{6}$

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$f(x) = ?$

x	$f(x)$
x	\circ
\circ	$f(x)$

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3.6 #43)

$r(x) = \frac{4x^2 - 4}{x + 2} = 0$
 $x = -2$

① v. as.: $x = -2$
 ② h. as.: $y = 4$
 ③ x-int:
 ④ y-int:
 ⑤ Domain: $(-\infty, -2) \cup (-2, \infty)$
 $\{x \mid x \in \mathbb{R} \wedge x \neq -2\}$
 ⑥ Range:

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