

Multiply

1. $(x-2)(x+1) = x^2 - x - 2$

2. $(x-(3-i))(x-(3+i))$

$$x^2 - x(3+i) - x(3-i) + (3-i)(3+i)$$

$$x^2 - 3x - \cancel{x}i - 3x + \cancel{x}i + 9 + \cancel{3i} - \cancel{3i} - i^2$$

$$x^2 - 6x + 10$$

$$(x-3+i)(x-3-i)$$

$$\begin{array}{r} x^2 - 3x - xi \\ -3x + 9 + 3i \\ \hline x^2 - 6x + 10 \end{array}$$

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Notes 3.4 & 3.5

Find polynomial of degree 4

$\pm i, 2, -3, (2+i)(-2-i)$

$$f(x) = (x-2)(x+3)(x-(-2+i))(x-(-2-i))$$

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Possible zeros

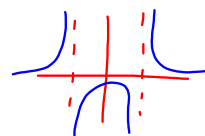
$$f(x) = \frac{-7x^3 + x^2 - x - 5}{2}$$

$\frac{p}{q} = \frac{\pm 5}{1}, \frac{\pm 1}{7}, \frac{\pm 5}{1}, \frac{\pm 1}{7}$ Factors $\rightarrow \pm 5, \pm 1$
 Factors $\rightarrow \pm 7, \pm 1$
 $\frac{\pm 5}{7}, \frac{\pm 1}{7}, \frac{\pm 5}{1}, \pm 1$

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Asymptotes

$$f(x) = \frac{-2x+11}{-2x+9}$$

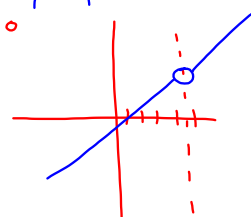


Vertical - set denom = 0

$$-2x+9=0$$

$$-9 -9$$

$$\frac{-2x = -9}{2} \Rightarrow x = \frac{9}{2}$$

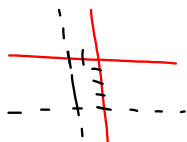


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$$f(x) = \frac{4x+6}{-x-2}$$

(VA) $-x-2=0$
 $-x=+2$
 $x=-2$

(HA) $\frac{4x}{-x} = \text{line } \frac{a}{b} = \frac{4}{-1} = -4$



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$$f(x) = \frac{2x-4}{x^2-2x-8}$$

VA: $x^2-2x-8=0$

$$(x-4)(x+2)=0$$

$$x-4=0 \quad x+2=0$$

$$x=4 \quad x=-2$$



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$$h(x) = \frac{7}{x^2 - x - 6}$$

VA: $x^2 - x - 6 = 0$
 $(x - 3)(x + 2) = 0$
 $x = 3 \quad x = -2$

~~$\begin{array}{c} -6 \\ \textcircled{3} \quad \textcircled{2} \\ -1 \end{array}$~~

Sep 30-10:06 AM