Day 8
Group Practice Day

If not completed, finish for homework.

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Show work for every question.

1. Find the coordinates of the hole: $f(x) = \frac{x^2 - x - 6}{x^2 + x - 12}$

$f(x) = \frac{(x-3)(x+2)}{(x+4)(x-3)} \rightarrow f(x) = \frac{x+2}{x+4}$

$x - 3 = 0$
$x = 3$

$f(3) = \frac{3+2}{3+4} = \frac{5}{7}$

Hole: $(3, 5/7)$

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2. Find the vertical asymptote(s): $f(x) = \frac{x^2 + x - 6}{2x^2 + x - 3}$

$f(x) = \frac{(x+3)(x-2)}{(2x+3)(x-1)}$

no hole.

VA den = 0
$2x + 3 = 0$ $x - 1 = 0$
$x = -\frac{3}{2}$ $x = 1$

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3. Find the horizontal ~~or slant asymptote(s)~~: $f(x) = \frac{2x^2 - 3x + 1}{x^2 - 2x}$

Change this question

$n^o = d^o$
$y = \frac{2}{1}$
$y = 2$

4. Find the x and y intercepts: $f(x) = \frac{x^2 + 2x - 3}{x^2 - 2x - 15}$

$f(x) = \frac{(x+3)(x-1)}{(x+3)(x-5)} \rightarrow f(x) = \frac{x-1}{x-5}$

x-int: num = 0
$x - 1 = 0$
$x = 1$
$(1, 0)$

y-int
$y = \frac{0-1}{0-5}$
$y = \frac{1}{5}$
$(0, \frac{1}{5})$

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5. Graph and analyze: $y = \frac{x^2 - 4}{x^2 + 5x + 6}$ (show all work in the space provided)

hole: $(-2, -4)$

$y = \frac{(x+2)(x-2)}{(x+2)(x+3)} \rightarrow y = \frac{x-2}{x+3}$ when $x = -2$

$x = -2$

$y = \frac{-2-2}{-2+3} = -4$

VA: $x = -3$
den = 0
$x + 3 = 0$

HA/~~SA~~: $y = 1$
$n^o = d^o$
$y = 1$

x-intercept(s): $(2, 0)$
num = 0
$x - 2 = 0$
$x = 2$

y-intercept: $(0, -\frac{2}{3})$

$y = \frac{x-2}{x+3}$
$y = \frac{0-2}{0+3}$
$y = -\frac{2}{3}$

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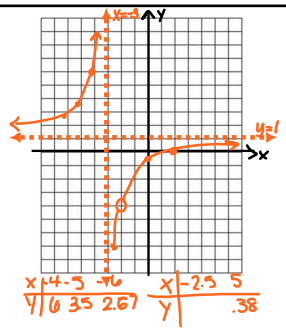
Tables:

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



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Day 9

Polynomial and Rational Inequalities

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39. $f(x) = x^4 - 2x^3 - 3x^2 + 10x - 10$

$1-i \quad \sqrt{5} \quad -(\sqrt{5}+-\sqrt{5})$

$1+i \quad -\sqrt{5}$

$(x^2-1x+2)\ (x^2-5)$

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