4.3b Worksheet and 4.4 HW due today

4.5 HW (7-12) & (21-26) due Monday 12/19

4.6 HW (finish pgs.30-31 and skip pgs.32-34) due Monday 12/19

Questions on 4.6 HW?

Dec 14-1:54 PM

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Home Tools SM3H-Module 4-S... ×

31 / 40 100%

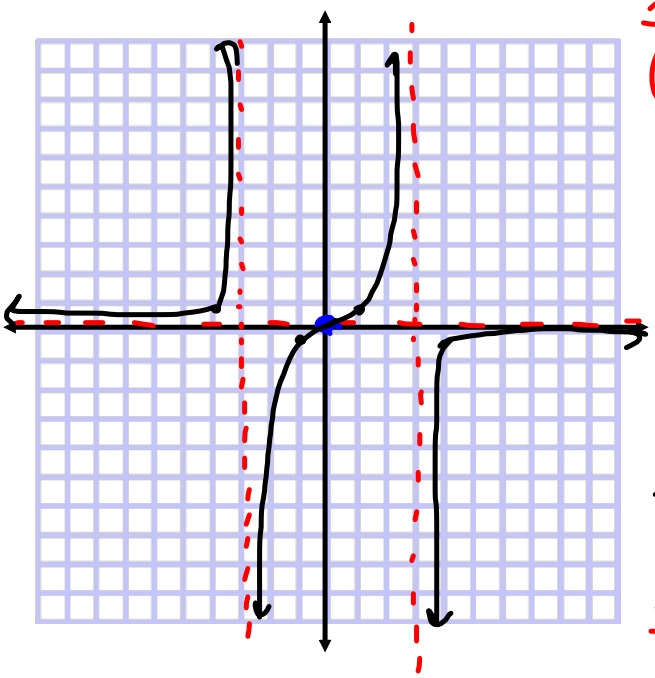
7. Roots, asymptotes, and sign lines

a. $f(x) = \frac{-x}{x^2-9}$ b. $f(x) = \frac{x+2}{x^2-2x+1}$ c. $f(x) = \frac{(x-1)(x+2)}{(x^3+4x^2+3x)}$

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

d. $f(x) = \frac{3x^2}{x^2-9}$

8.50 x 11.00 in



7a) $\frac{-x}{(x+3)(x-3)}$

d1 / d2 proper

x-int:

$0 = \frac{-x}{(x+3)(x-3)}$

$0 = x \rightarrow (0,0)$

$\frac{+ + 4}{- 1 \cdots - 7}$

$\frac{4}{7}$

$(-4, \frac{4}{7})$

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

$\frac{1}{-8}$

$\frac{-1}{4 \cdot -4}$

$\frac{1}{8}$

$\frac{-4}{7 \cdot 1}$

$-\frac{4}{7}$

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Part II: Sketch a graph of each rational function. Start by graphing the features of the function (same features from Part I), then 'fill in' the rest of the graph using a sign line to guide you.

6. Asymptotes and sign lines

a. $f(x) = \frac{1}{x^2-9}$ b. $f(x) = \frac{-3}{x^2-3x+2}$ c. $f(x) = \frac{2}{(x-1)^2(x+2)}$ d. $f(x) = \frac{1}{x^2}$

7. Roots, asymptotes, and sign lines

a. $f(x) = \frac{-x}{x^2-9}$ b. $f(x) = \frac{x+2}{x^2-2x+1}$ c. $f(x) = \frac{(x-1)(x+2)}{(x^3+4x^2+3x)}$

d. $f(x) = \frac{3x^2}{x^2-9}$

8.50 x 11.00 in

6c $f(x) = \frac{2}{(x-1)^2(x+2)}$

$2x^0 = 2$

no x-int:

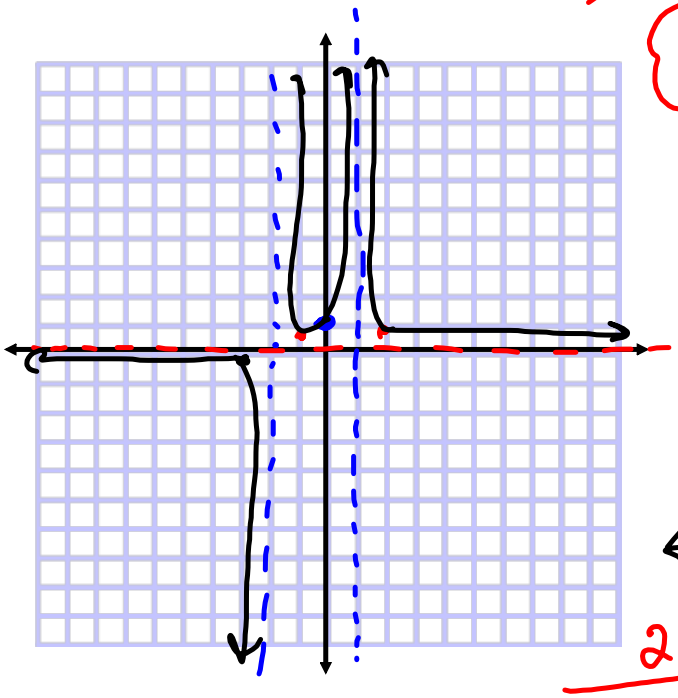
y-int: $\frac{2}{1 \cdot 2} = 1$

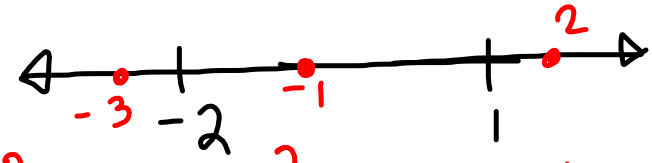
(0,1)

vertical asy: $x = 1$, $x = -2$

$\frac{\text{deg}}{\text{deg}}$

proper: horizontal asy @ $y = 0$





$\frac{2}{(x-1)^2(x+2)}$

$\frac{2}{16 \cdot -1}$ $-\frac{1}{8}$

$\frac{2}{4 \cdot 1}$ $\frac{1}{2}$

$\frac{2}{1 \cdot 4}$ $\frac{1}{2}$

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4.7 Graphing Rational Functions

A Practice Understanding Task

Part I: Seeing Structure

For each function, determine intercepts, domain, asymptotes, and complete a sign line. Use this information to sketch the graph.

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

$\frac{d2}{d2}$

x-int:

$x^2 + 1 = 0$

$\sqrt{x^2} = \sqrt{-1}$

$x = \pm i$

y-int:

$\frac{0^2+1}{0(0-2)} = \frac{1}{0}$

no y-int.

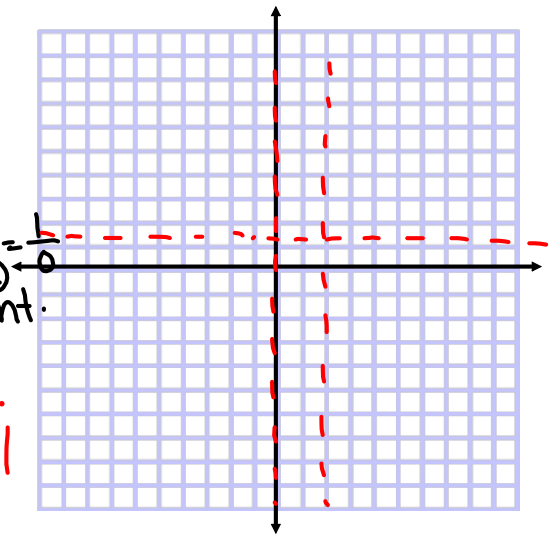
vert. asy:

$x = 2$

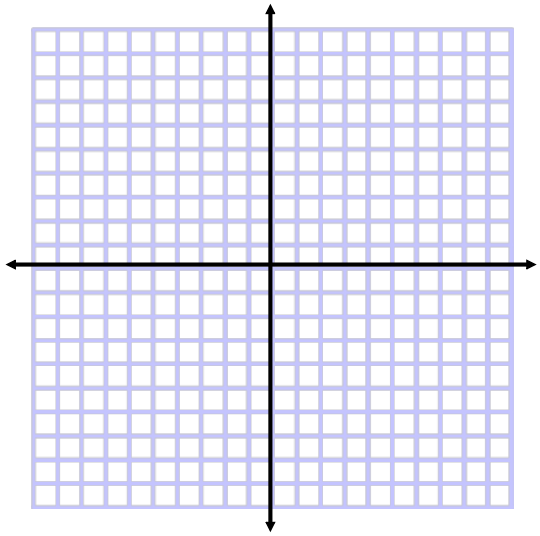
$x = 0$

hor. asy.

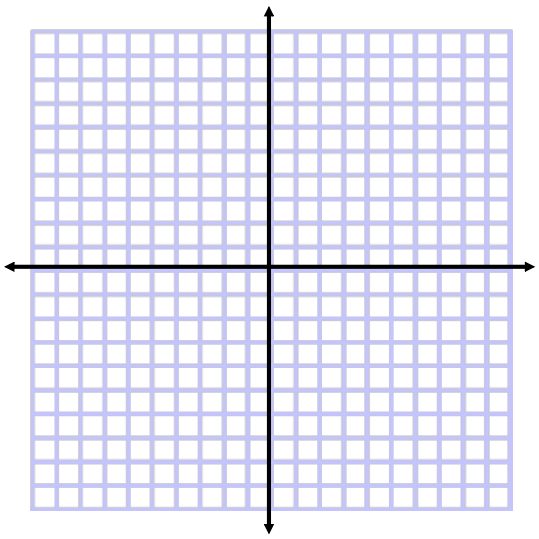
$y = \frac{1}{1} = 1$



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



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



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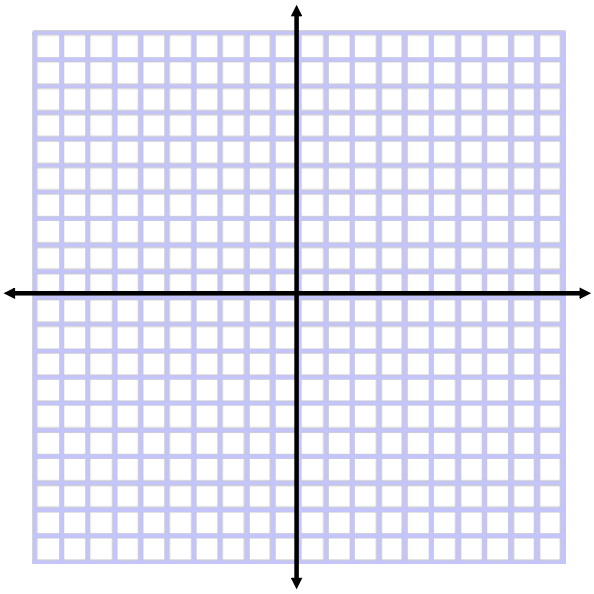
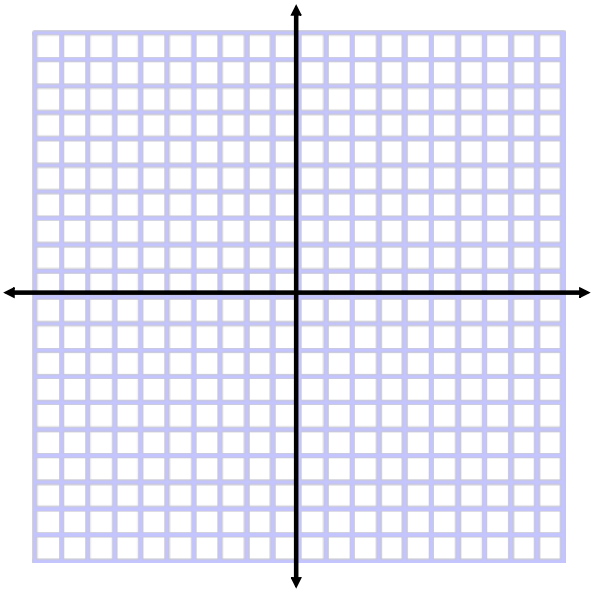
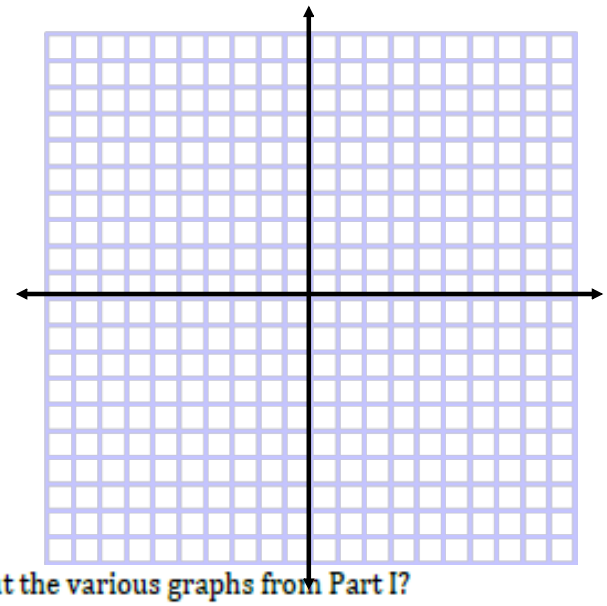
4. $f(x) = \frac{(x-1)^2}{x^3+4x}$



5. $f(x) = \frac{3x^2}{x^2-9}$



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

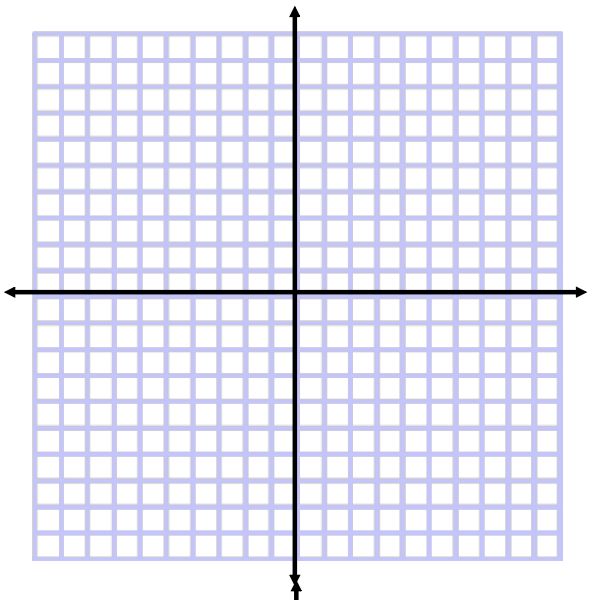


7. What observations do you notice about the various graphs from Part I?

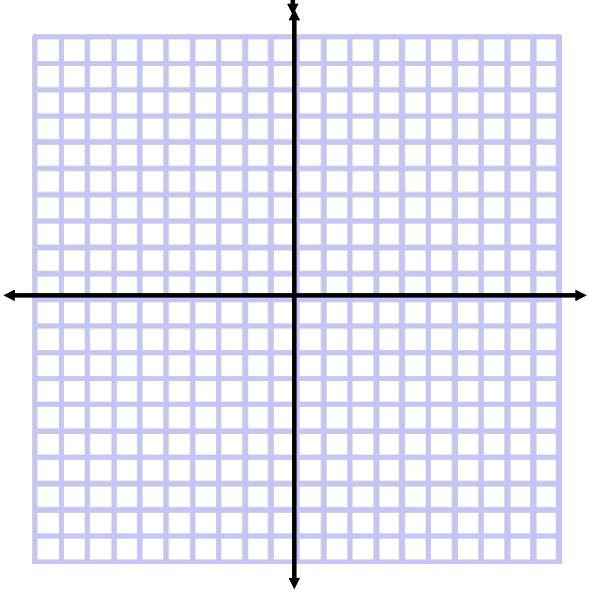
Part II: Seeing More Structure

8. Determine the features and then sketch the graphs of the functions.

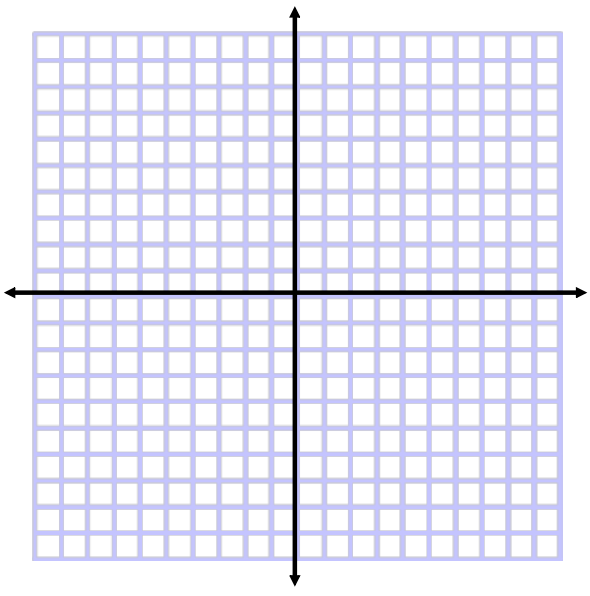
a. $f(x) = \frac{x}{x^2+1}$



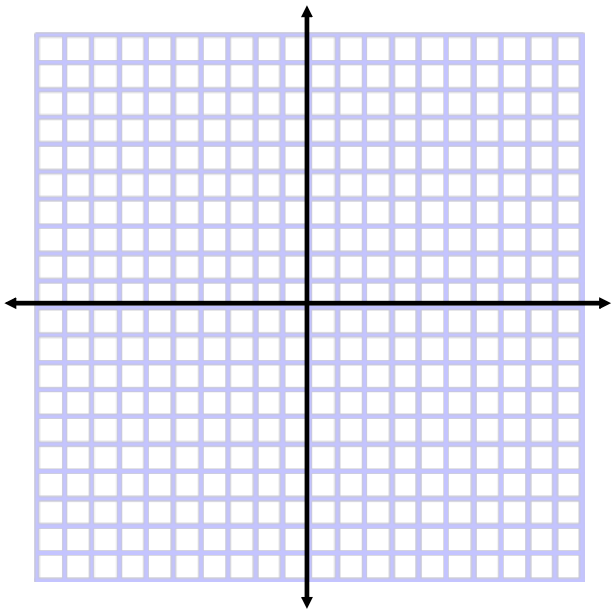
b. $f(x) = \frac{2x\,(x-1)(x+2)}{(x+4)}$



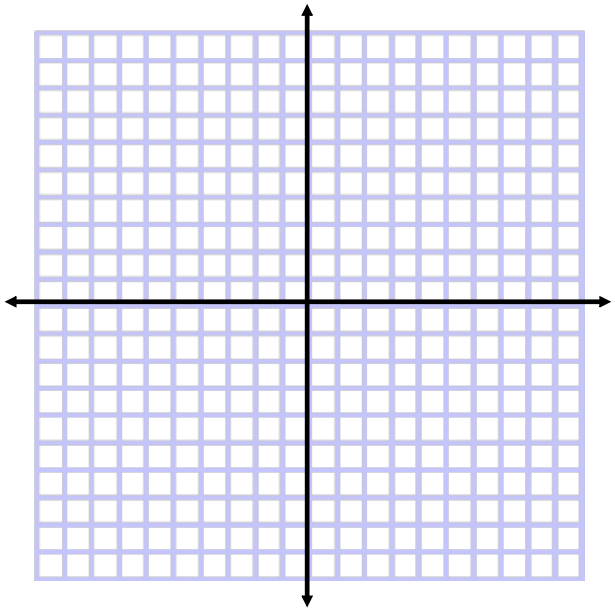
c. $f(x) = \frac{(2x-1)(x+2)}{(x+3)(x-1)}$



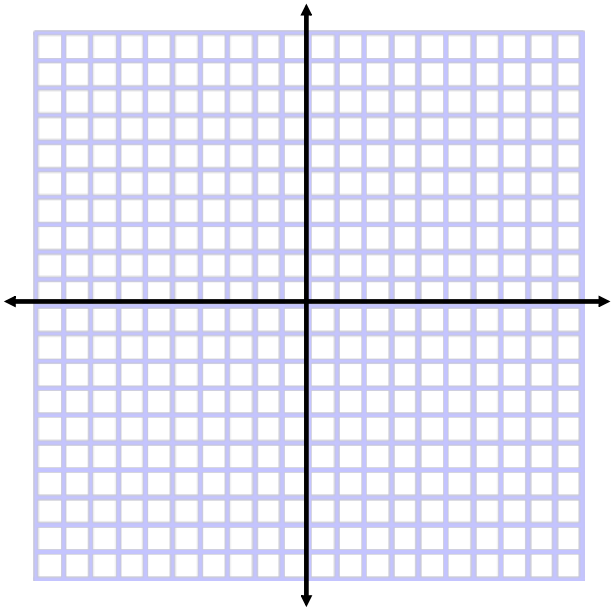
d. $f(x) = \frac{3x(x+2)}{(x+3)(x-1)}$



e. $f(x) = \frac{(x-1)^2(x+2)}{(x+1)^2}$



f. $f(x) = \frac{2x}{(x-1)^2}$



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Homework/Classwork

-Finish 4.7 "Ready, Set, Go"

Oct 21-8:47 AM