

4.4 HW and 4.5 HW (7-12) & (21-26) checked off today

4.6 HW (finish pgs.30-31 and skip pgs.32-34) due today

4.7 HW due Wednesday (I will check it off and collect your blue sheet Friday.

Get your Rational Functions Review out;  
today's our day!!

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Simplify each rational expression fully and state what the excluded values are.

1. e.v.:  $r=9, 1$

$$\frac{3 - 2r - r^2}{r^2 - 10r + 9} =$$

$$\frac{-r^2 - 2r + 3}{(r-9)(r-1)} = \frac{-(r^2 + 2r - 3)}{(r-9)(r-1)}$$

$$= \frac{-(r+3)(r-1)}{(r-9)(r-1)} = \frac{-(r+3)}{(r-9)}$$

2.  $\frac{5n^2 + 15n}{9n^2 + 27n} = \frac{5n(n+3)}{9n(n+3)} = \frac{5}{9}$

E.V.:  $n=0, -3$

Add or subtract each rational expression. Fully simplify your answer.

3.  $\frac{6x}{x+4} - \frac{3}{x+2}$

4.  $\frac{3}{6a} - \frac{a-2}{a+4}$

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$$11. \quad f(x) = \frac{x^2 - 16}{-2x^2 - 2x + 24} = \frac{(x+4)(x-4)}{-2(x^2 + x - 12)} = \frac{\cancel{(x+4)}(x-4)}{-2\cancel{(x+4)}(x-3)}$$

$$\frac{d^2}{dx^2} = \frac{(x-4)}{-2(x-3)} = 0$$

E.V:  $x = -4, 3$

Horizontal Asymptote(s):  $y = -\frac{1}{2}$

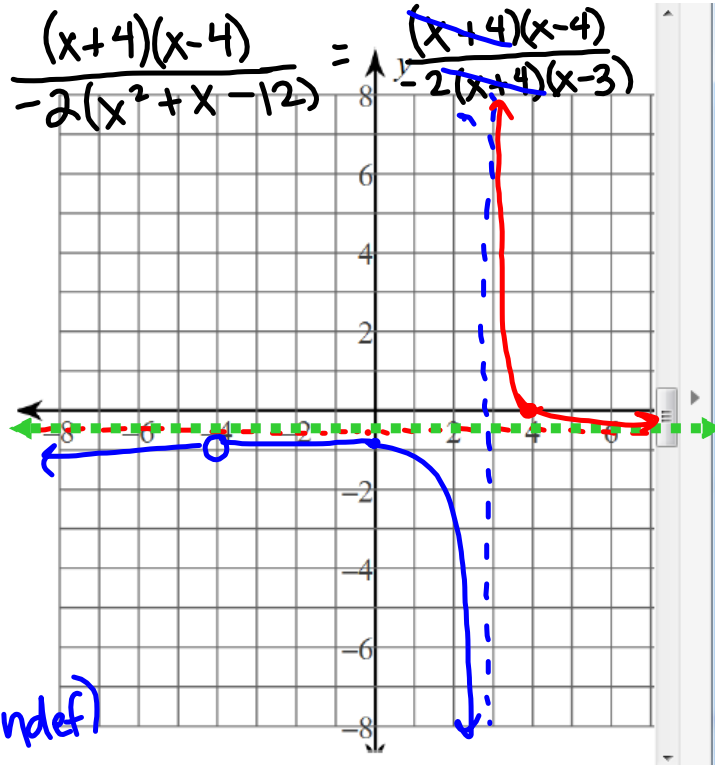
Vertical Asymptote(s):  $x = 3$

Slant Asymptote(s): none

x-intercept(s):  $(4, 0)$

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

Hole(s):  $x = -4$  or  $(-4, \text{undef})$



$$y\text{-int: } \frac{0-4}{-2(0-3)} = \frac{-4}{6} = \frac{2}{3}$$

\*\*No calculator below. State the asymptotes, intercepts, and holes. Sketch a graph of the following.

$$\frac{d/2}{d/1} f(x) = \frac{x^2 - 6x + 8}{4x - 12} = \frac{(x-4)(x-2)}{4(x-3)}$$

y-int:  $\frac{-4 \cdot -2}{4 \cdot -3} = \frac{8}{-12} = -\frac{2}{3}$

Horizontal Asymptote(s): none

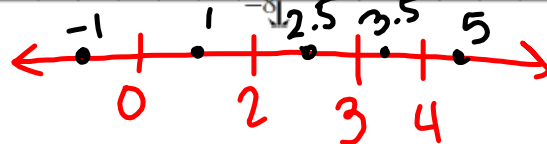
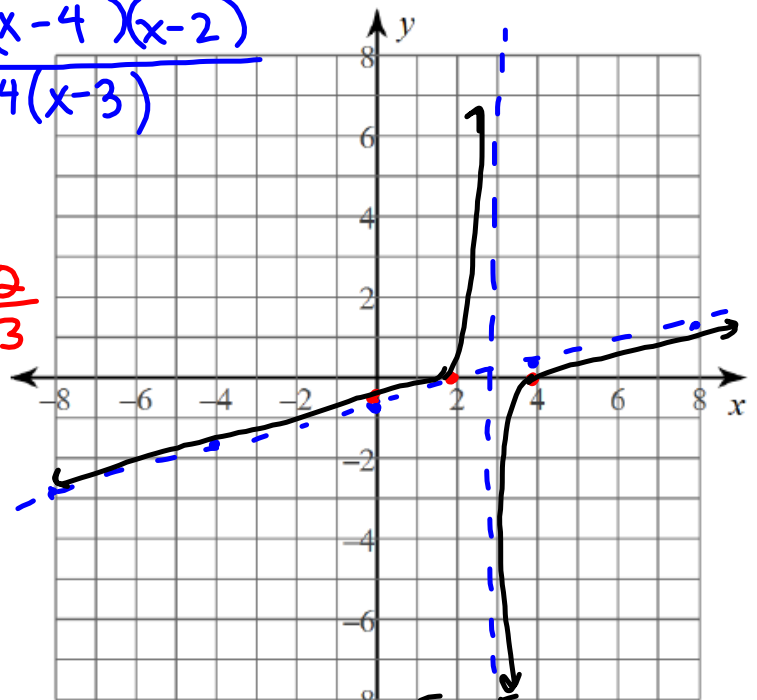
Vertical Asymptote(s): x=3

Slant Asymptote(s):  $y = \frac{1}{4}x - \frac{3}{4}$

x-intercept(s): (4,0), (2,0)

y-intercept(s): \_\_\_\_\_

Hole(s): none



$$\begin{array}{r} \frac{1}{4}x - \frac{3}{4} \\ \hline 4x - 12 \overline{) x^2 - 6x + 8} \\ \underline{-(x^2 - 3x)} \phantom{+ 8} \\ -3x + 8 \\ \underline{-(-3x + 9)} \\ -1 \end{array}$$

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8.  $k \neq 5, 0$

$$\frac{3}{k^2 - 5k} \cdot \frac{(k+5)6}{(k-5)k} = \frac{1}{(k-5)k}$$

$k(k-5)$

$$\frac{3 + 6k - 30 - k}{k(k-5)} = 0 \rightarrow \frac{-27 + 5k}{k(k-5)} = 0$$

$$-27 + 5k = 0$$

$$\frac{5k}{5} = \frac{27}{5}$$

$$k = \frac{27}{5}$$

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