College Algebra **Name:** KEY

Unit 2B LT 2.6 PRACTICE Day 2 **Date:** _____ **Period:** _____

Identify the key information for the following rational functions, then graph.

1.) $f(x)=\frac{x-4}{-4x-16}$ $f(x)=\frac{x-4}{-4(x+4)}$

Vertical Asymptote: $x=-4$

Horizontal Asymptote: $y=-1/4$

Hole(s): none

Domain: $(-\infty,-4)\cup(-4,\infty)$

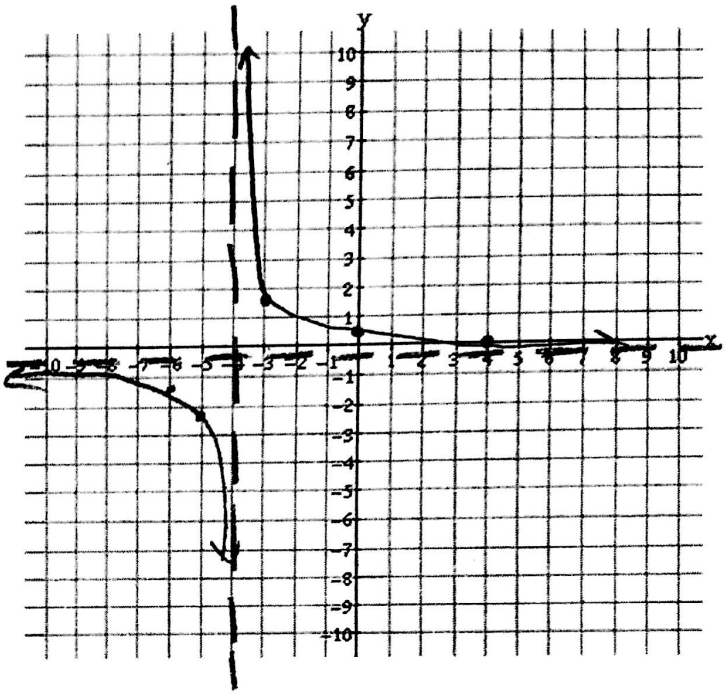
Range: $(-\infty,-1/4)\cup(-1/4,\infty)$

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

y-intercept: $(0,1/4)$

End Behavior: As $x\to-\infty$, $f(x)\to -1/4$

As $x\to\infty$, $f(x)\to -1/4$



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

Vertical Asymptote: $x=1$ $x=-1$

Horizontal Asymptote: $y=0$

Hole(s): none

Domain: $(-\infty,-1)\cup(-1,1)\cup(1,\infty)$

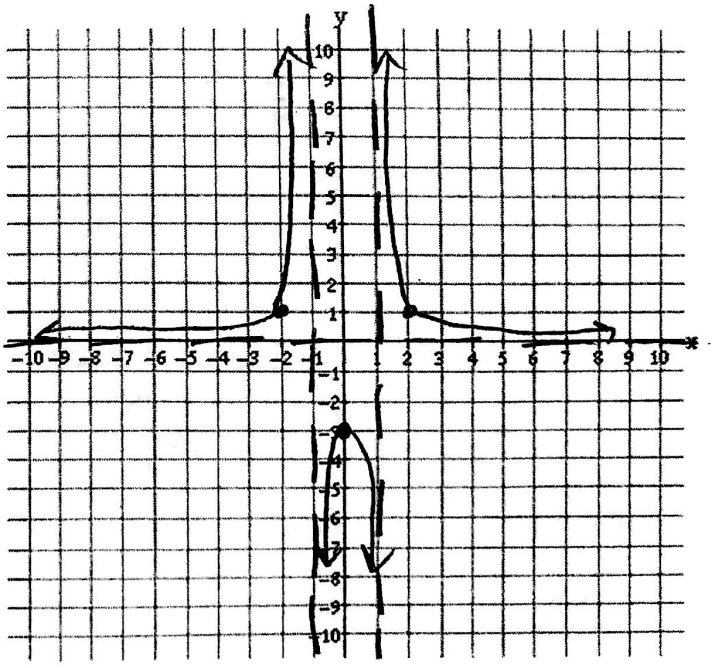
Range: $(-\infty,-3]\cup(0,\infty)$

x-intercept(s): none

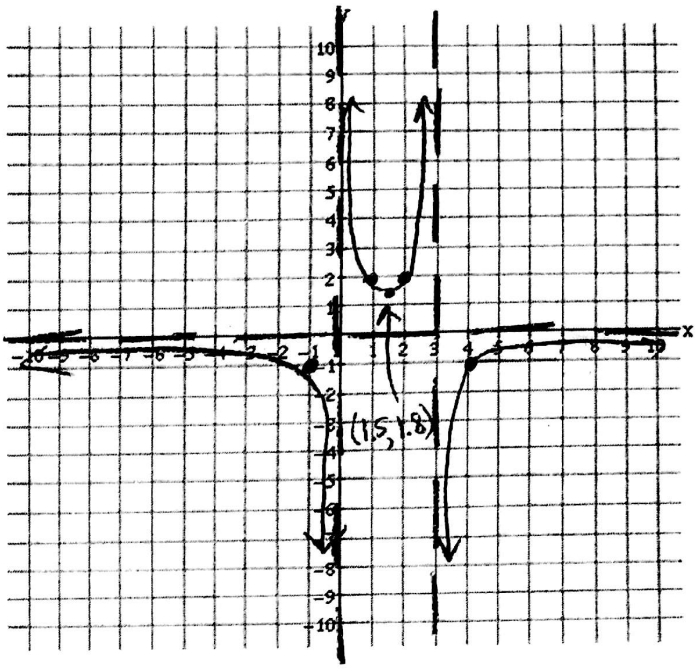
y-intercept: $(0,-3)$

End Behavior: As $x\to-\infty$, $f(x)\to 0$

As $x\to\infty$, $f(x)\to 0$



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



Vertical Asymptote: $x=0$ $x=3$

Horizontal Asymptote: $y=0$

Hole(s): none

Domain: $(-\infty,0)\cup(0,3)\cup(3,\infty)$

Range: $(-\infty,0)\cup[1.8,\infty)$

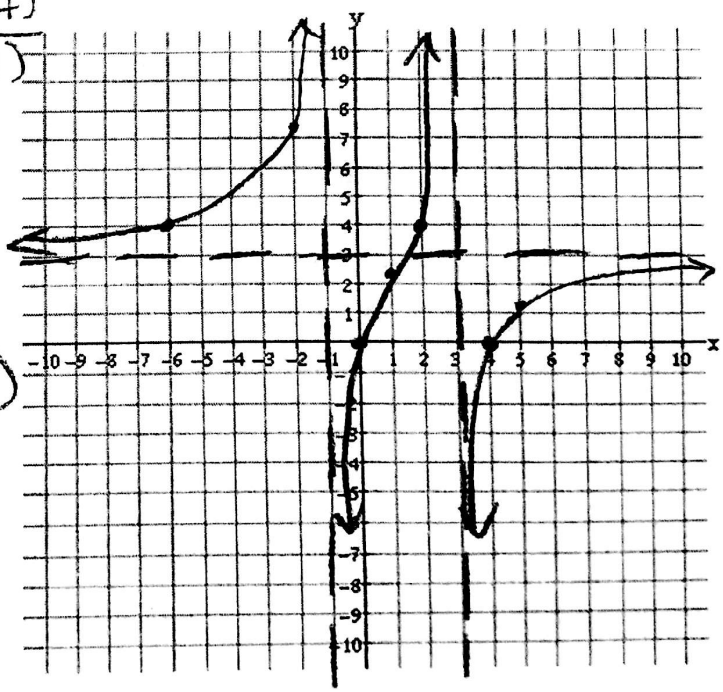
x-intercept(s): none

y-intercept: none

End Behavior: As $x\to-\infty$, $f(x)\to$ 0

As $x\to\infty$, $f(x)\to$ 0

4.) $f(x)=\frac{3x^2-12x}{x^2-2x-3}$ $f(x)=\frac{3x(x-4)}{(x-3)(x+1)}$



Vertical Asymptote: $x=3$ $x=-1$

Horizontal Asymptote: $y=3$

Hole(s): none

Domain: $(-\infty,-1)\cup(-1,3)\cup(3,\infty)$

Range: $(-\infty,\infty)$

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

y-intercept: $(0,0)$

End Behavior: As $x\to-\infty$, $f(x)\to$ 3

As $x\to\infty$, $f(x)\to$ 3