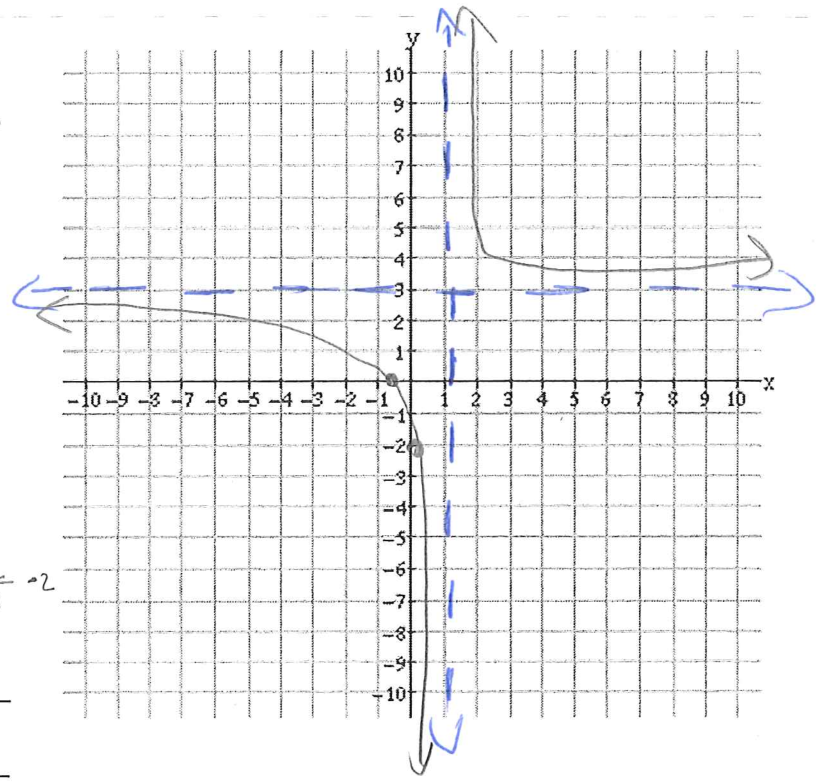
College Algebra **Name:** Key

Unit 2B LT 2.6 PRACTICE Day 1 **Date:** ________ **Period:** ______

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

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



a. Vertical Asymptote(s): $x=1$ $x-1=0$

b. Horizontal Asymptote: $y=3$ $y=3/1$

c. Hole(s): none

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

e. Range: $(-\infty,3)\cup(3,\infty)$

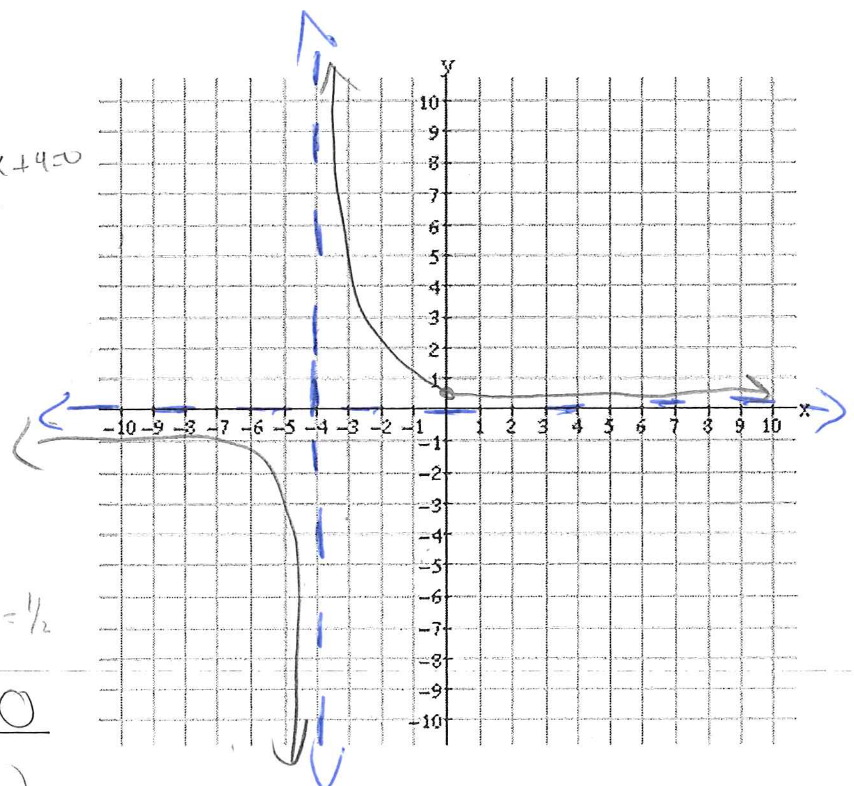
f. zero's ~~x-intercept~~(s): $(-2/3,0)$ $3x+2=0$ $x=-2/3$

g. y-intercept: $(0,-2)$ $\frac{3(0)+2}{0-1}=\frac{2}{-1}=-2$

h. End behavior: As $x\to-\infty$, $f(x)\to$ 3

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

2.) $f(x)=\dfrac{2}{x+4}$



a. Vertical Asymptote(s): $x=-4$ $x+4=0$

b. Horizontal Asymptote: $y=0$

c. Hole(s): none

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

e. Range: $(-\infty,0)\cup(0,\infty)$

f. zeros x-intercept(s): none $2\neq0$

g. y-intercept: $(0,\frac{1}{2})$ $\frac{2}{0+4}=\frac{2}{4}=\frac{1}{2}$

h. End behavior: As $x\to-\infty$, $f(x)\to$ 0

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

3.) $f(x) = \dfrac{x+1}{2x}$

a. Vertical Asymptote(s): $x = 0$ $2x = 0$

b. Horizontal Asymptote: $y = 1/2$ $y = \frac{1}{2}$

c. Hole(s): none

d. Domain: $(-\infty, 0) \cup (0, \infty)$

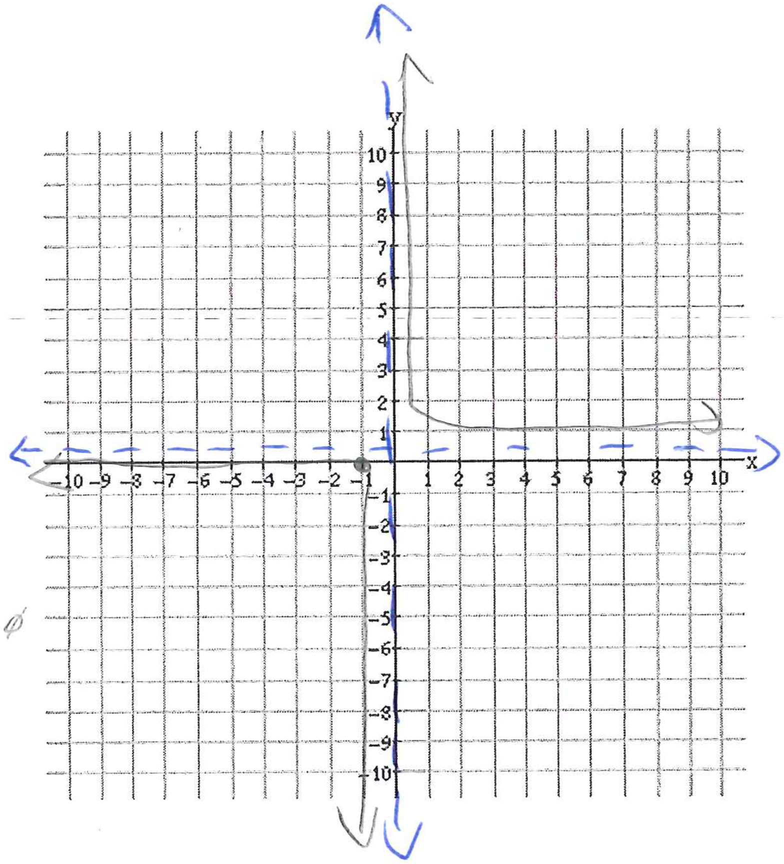
e. Range: $(-\infty, 1/2) \cup (1/2, \infty)$

f. x-intercept(s): $(-1, 0)$ $x + 1 = 0$

g. y-intercept: none $\frac{0+1}{2(0)} = \frac{1}{0} = \emptyset$

h. End behavior: As $x \to -\infty, f(x) \to$ $1/2$

As $x \to \infty$, $f(x) \to$ $1/2$



4.) $f(x) = \dfrac{-8}{x(x+3)}$

a. Vertical Asymptote(s): $x = 0$ $x = -3$ $x = 0$ $x + 3 = 0$

b. Horizontal Asymptote: $y = 0$

c. Hole(s): none

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

e. Range: $(-\infty, 0) \cup (0, \infty)$

f. x-intercept(s): none $0 = -8$

g. y-intercept: none $\frac{-8}{0(0+3)} = \frac{-8}{0} = \emptyset$

h. End behavior: As $x \to -\infty, f(x) \to$ 0

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