

College Algebra

Unit 2B LT 2.6 Quiz Review

Name: Namani

Date: _____ Period: _____

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

Vertical Asymptote: $x = 3$

Horizontal Asymptote: $y = 2$

Hole(s): $(1, -2)$

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

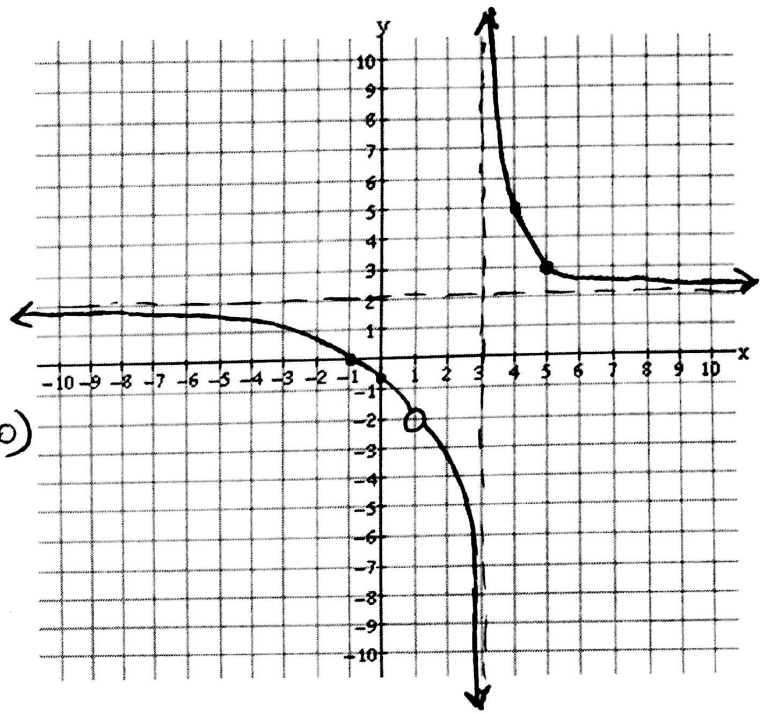
Range: $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

x-intercept(s): $x = -1$

y-intercept: $y = -2/3$

End Behavior: As $x \rightarrow -\infty$, $f(x) \rightarrow$ 2

As $x \rightarrow \infty$, $f(x) \rightarrow$ 2



2.) $f(x) = \frac{3x}{2x^2 - 18} = \frac{3x}{2(x-3)(x+3)}$

Vertical Asymptote: $x = 3, -3$

Horizontal Asymptote: $y = 0$

Hole(s): none

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

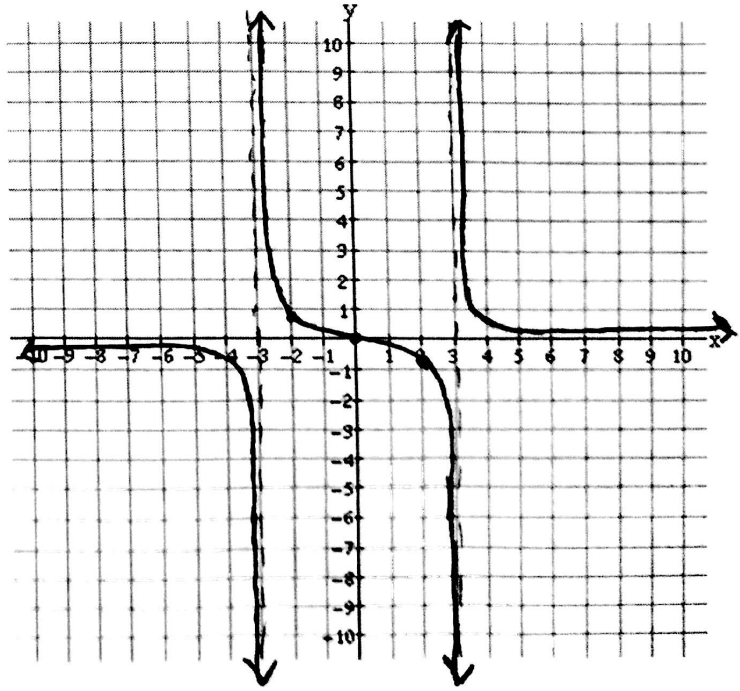
Range: $(-\infty, 0) \cup (0, \infty)$

x-intercept(s): $x = 0$

y-intercept: $y = 0$

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

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



$$3.) f(x) = \frac{x^2 - x - 6}{x^2 - 4} = \frac{(x-3)(\cancel{x+2})}{(x-2)(\cancel{x+2})}$$

Vertical Asymptote: $x = 2$

Horizontal Asymptote: $y = 1$

Hole(s): $(-2, 5/4)$

Domain: $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

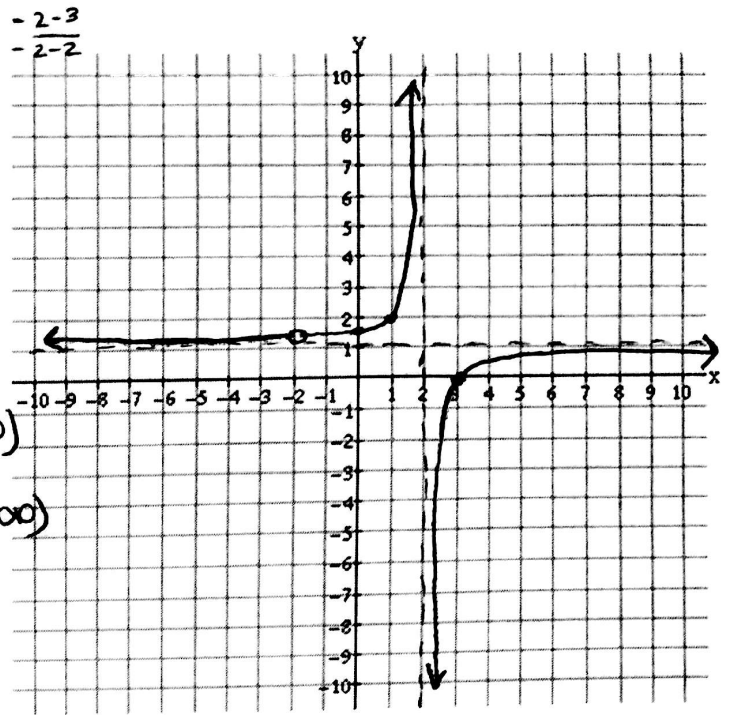
Range: $(-\infty, 1) \cup (1, 5/4) \cup (5/4, \infty)$

x-intercept(s): $x = 3$

y-intercept: $y = 3/2$

End Behavior: As $x \rightarrow -\infty$, $f(x) \rightarrow$ 1

As $x \rightarrow \infty$, $f(x) \rightarrow$ 1



$$4.) f(x) = \frac{x^2 - 5x - 6}{x^2 - 4x - 12} = \frac{(x-6)(x+1)}{(x-6)(x+2)}$$

Vertical Asymptote: $x = -2$

Horizontal Asymptote: $y = 1$

Hole(s): $(6, 7/8)$

Domain: $(-\infty, -2) \cup (-2, 6) \cup (6, \infty)$

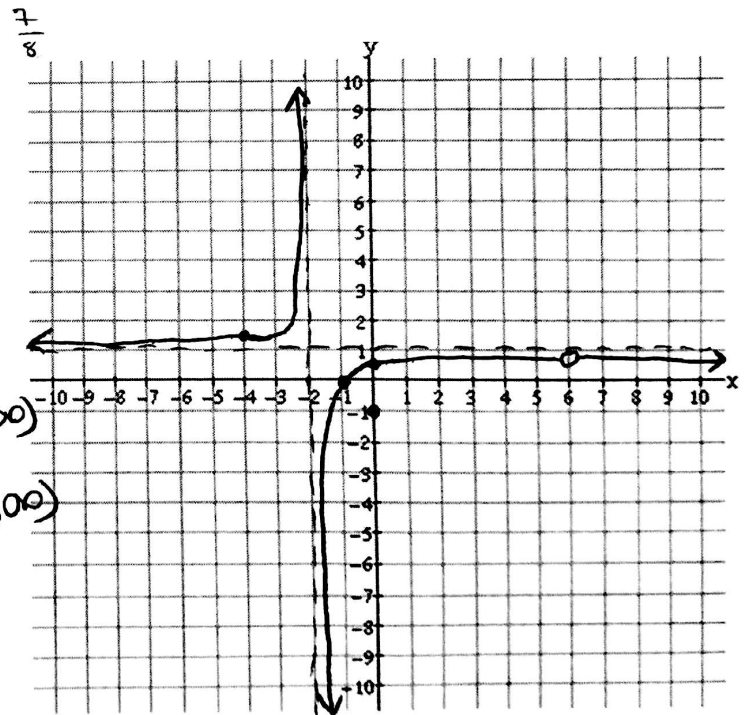
Range: $(-\infty, 7/8) \cup (7/8, 1) \cup (1, \infty)$

x-intercept(s): $x = -1$

y-intercept: $y = 1/2$

End Behavior: As $x \rightarrow -\infty$, $f(x) \rightarrow$ 1

As $x \rightarrow \infty$, $f(x) \rightarrow$ 1



5.) Given $h(x) = \frac{6x-9}{2x^2+x-6}$, which of the following key information holds true? **Circle all that apply.**

a) Domain: $(-\infty, -2) \cup (-2, \infty)$

b) Range: $(-\infty, 0) \cup (0, \frac{6}{7}) \cup (\frac{6}{7}, \infty)$

c) Zero: $x = 3$

d) Horizontal Asymptote: $y = 3$

e) Vertical Asymptote: $x = -2$

f) Hole: $(\frac{3}{2}, \frac{6}{7})$

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

\uparrow \uparrow
 Hole: VA: $x = -2$
 $(\frac{3}{2}, \frac{6}{7})$ HA: $y = 0$

6.) Given $h(x) = \frac{3x-21}{2x^2+x-28}$, which of the following key information holds true? **Circle all that apply.**

a) Domain: $(-\infty, -4) \cup (-4, \frac{7}{2}) \cup (\frac{7}{2}, \infty)$

b) Range: $(-\infty, 0) \cup (0, \infty)$

c) Zero: none

d) Horizontal Asymptote: $y = 0$

e) Vertical Asymptote: $x = \frac{7}{2}$ and $x = -4$

f) Hole: none

$$\frac{3(x-7)}{(2x-7)(x+4)}$$

$\underbrace{\hspace{2cm}}$
 VA: $x = \frac{7}{2}, -4$
 HA: $y = 0$
 Hole: none

7.) Given $h(x) = \frac{4x-10}{2x^2+x-15}$, which of the following key information holds true? **Circle all that apply.**

a) Domain: $(-\infty, -3) \cup (-3, \frac{5}{2}) \cup (\frac{5}{2}, \infty)$

b) Range: $(-\infty, 0) \cup (0, \infty)$

c) Zero: $x=4$

d) Horizontal Asymptote: $y = 0$

e) Vertical Asymptote: $x = -3$

f) Hole: $(\frac{5}{2}, \frac{4}{11})$

$$\frac{2(2x-5)}{(2x-5)(x+3)}$$

VA: $x = -3$
 HA: $y = 0$
 Hole: $(\frac{5}{2}, \frac{4}{11})$

8.) Given $h(x) = \frac{x^2-x-6}{x^2-4}$, which of the following key information holds true? **Circle all that apply.**

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

b) Range: $(-\infty, 1) \cup (1, \frac{5}{4}) \cup (\frac{5}{4}, \infty)$

c) Zero: $x=3$

d) Horizontal Asymptote: $y = 1$

e) Vertical Asymptote: $x = 1$

f) Hole: $(-2, \frac{5}{4})$

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

VA: $x = 2$
 HA: $y = 1$
 Hole: $(-2, \frac{5}{4})$