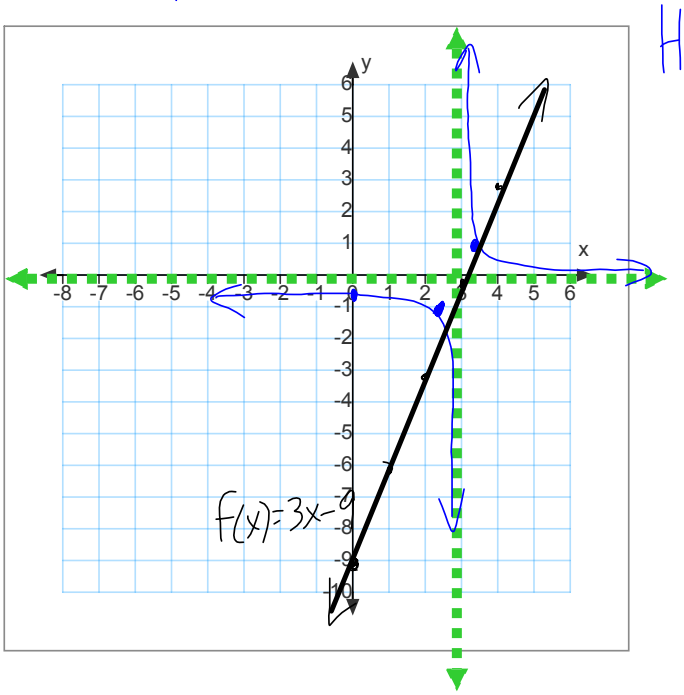
7.4 Reciprocal Functions

Your Turn pg. 398

Graph $y = \frac{1}{3x-9}$



VA: $x = 3$

HA: $y = 0$

$x \to \infty \quad y > 0$ (barely)

$x \to -\infty \quad y < 0$ (barely)

x-int: —

y-int: $(0, -\frac{1}{9})$

invariant points

$3x - 9 = 1$ (+9 +9)

$3x = 10$

$x = 10/3$

$(3.3, 1)$

$3x - 9 = -1$ (+9 +9)

$3x = 8$

$x = 8/3$

$(2.6, -1)$

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#1-3 ab, 4, 5ab, 6a, 7

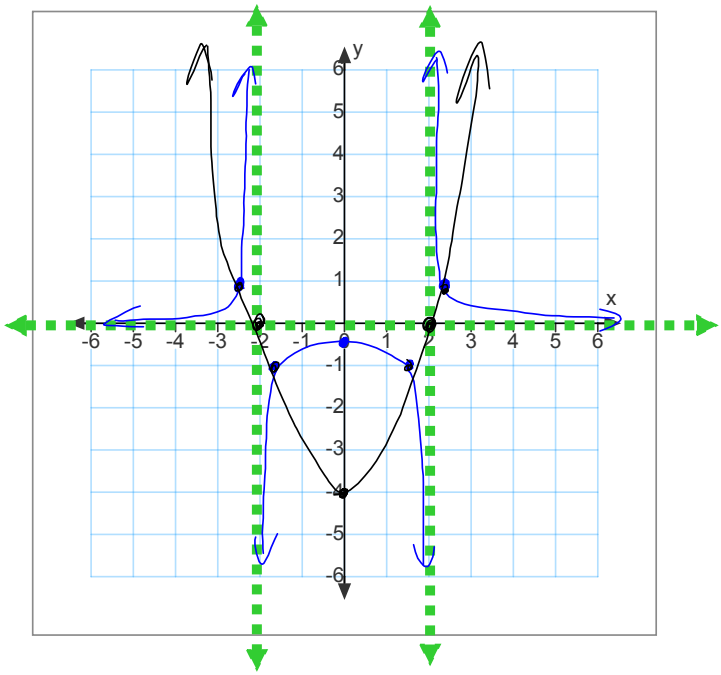
Ex3) Graphing $y = \frac{1}{x^2-4}$ $\frac{1}{(x-2)(x+2)}$ (and $y = x^2-4$)

VA: $x = -2$ $x = +2$

HA: $y = 0$ (above at both ends)

x-int: —

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



invariant points:

$x^2 - 4 = 1$

$x^2 = 5$

$x = \pm\sqrt{5}$

$(\sqrt{5}, 1)$

$(-\sqrt{5}, 1)$

$x^2 - 4 = -1$

$x^2 = 3$

$x = \pm\sqrt{3}$

$(\sqrt{3}, -1)$

$(-\sqrt{3}, -1)$

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#1-3cd, 5cd, 6bc, 8-10, 15