HAT
8.3 Graphing Reciprocal Functions

1/17/18

Warm Up: Your family is driving 250 miles to Kansas City. How long will your trip take if your average speed is:

a. 60 mph? $\frac{250 \text{ miles}}{1} \cdot \frac{1 \text{ hour}}{60 \text{ miles}} = \frac{250}{60} = 4\frac{1}{6}$ 4hrs. 10min

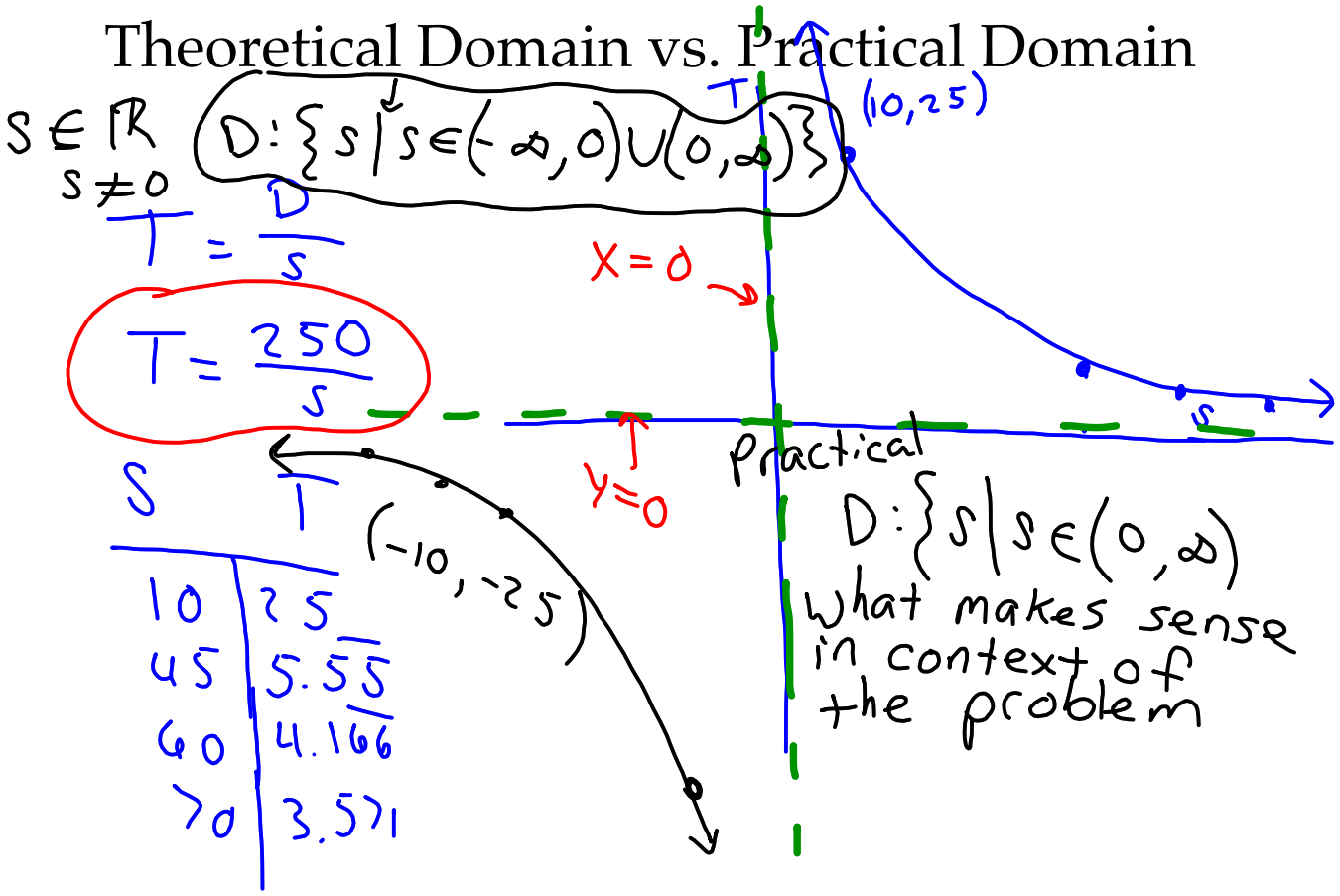
b. 70 mph? $\frac{250}{70}$ $3\frac{4}{7} \approx 3$hrs 34min

c. 45 mph? $\approx$ 5 hrs 33 min

d. 10 mph? $\frac{250}{10} = 25$ hours

Write an equation to represent the time of the trip T, given the average speed, S. $T = \frac{D}{S}$

Theoretical Domain vs. Practical Domain



For each example:

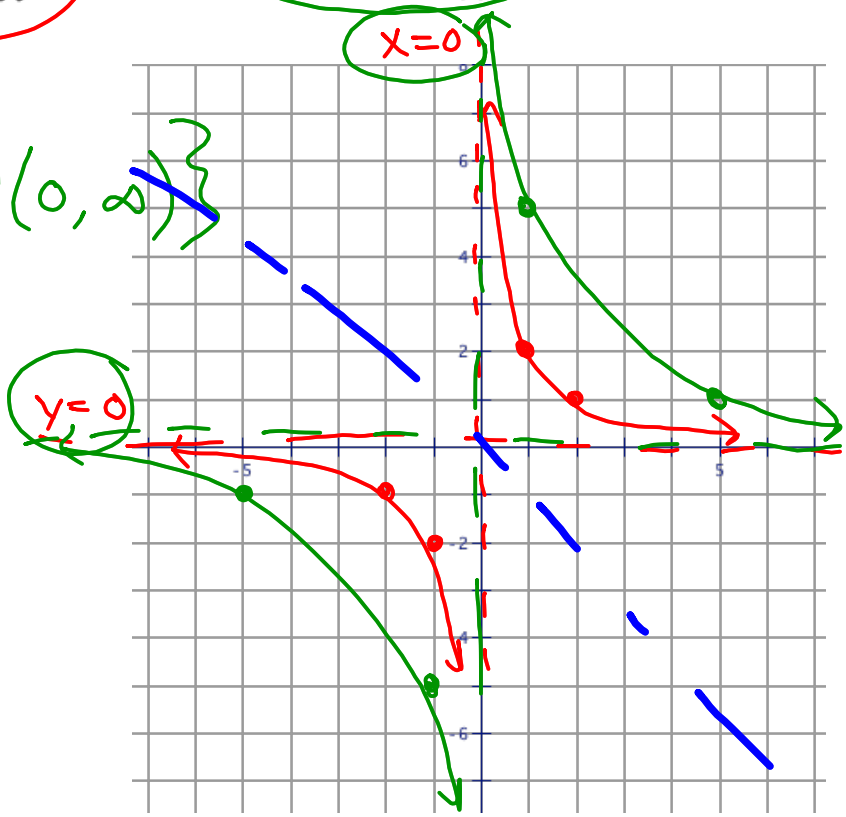
a. Sketch the graph.

b. State the domain and range.

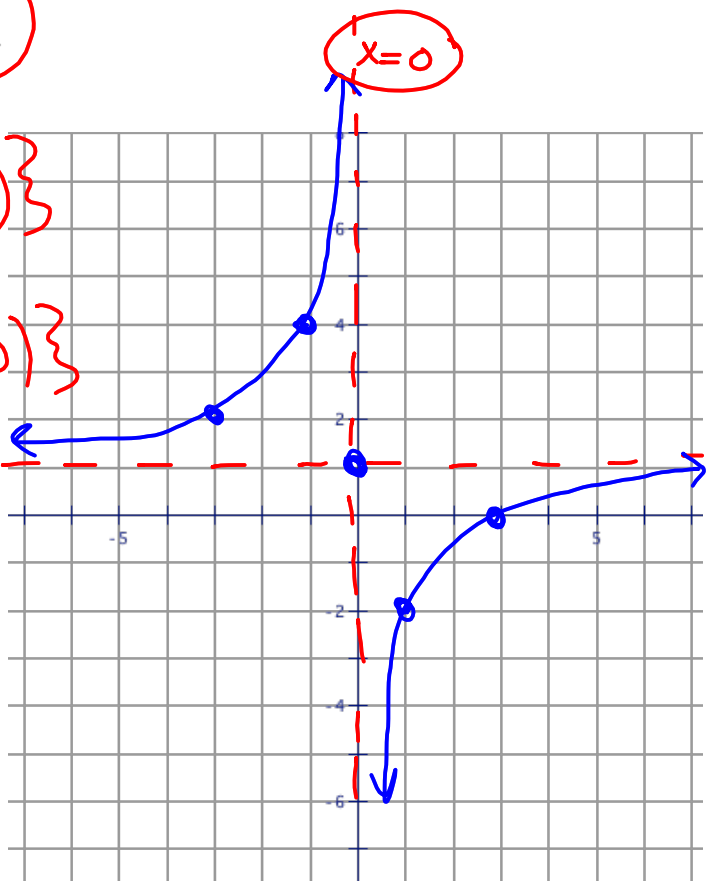
c. Write equations for all asymptotes.

Ex#1: $f(x)=\frac{2}{x}$ $g(x)=\frac{5}{x}$

D: $\{x \mid x \in (-\infty, 0) \cup (0, \infty)\}$



Ex#2: $f(x) = \frac{-3}{x} + 1$ H.A.



•D: $\{x \mid x \in (-\infty, 0) \cup (0, \infty)\}$

•R: $\{y \mid y \in (-\infty, 1) \cup (1, \infty)\}$

Ex#3: $f(x)=\dfrac{1}{x+2}$

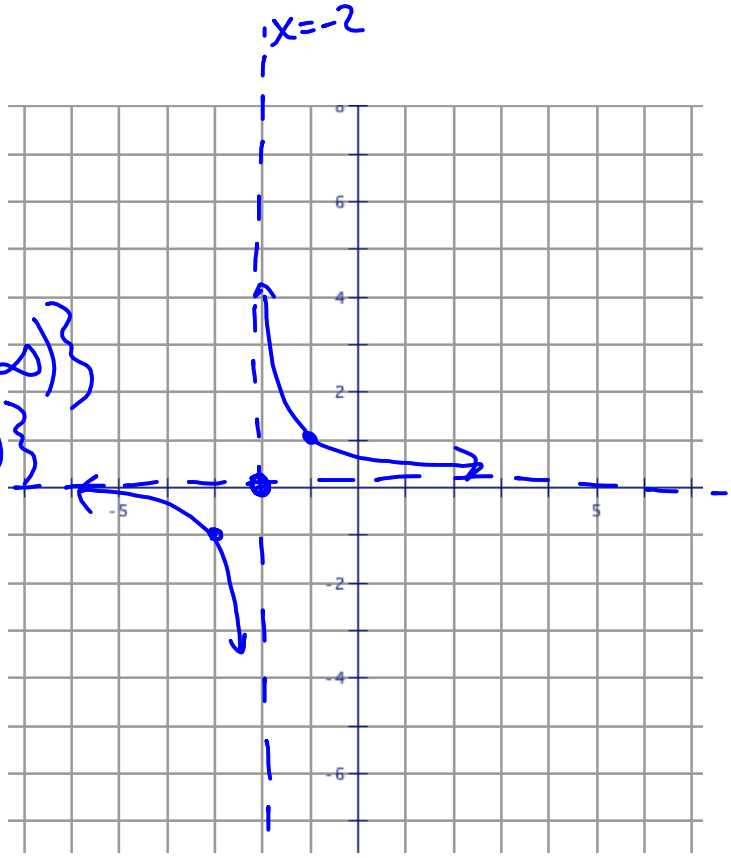
$=\dfrac{1}{x}$

D: $\{x \mid x \in (-\infty,-2) \cup (-2,\infty)\}$

R: $\{y \mid y \in (-\infty,0) \cup (0,\infty)\}$

$x=-2$

$y=0$



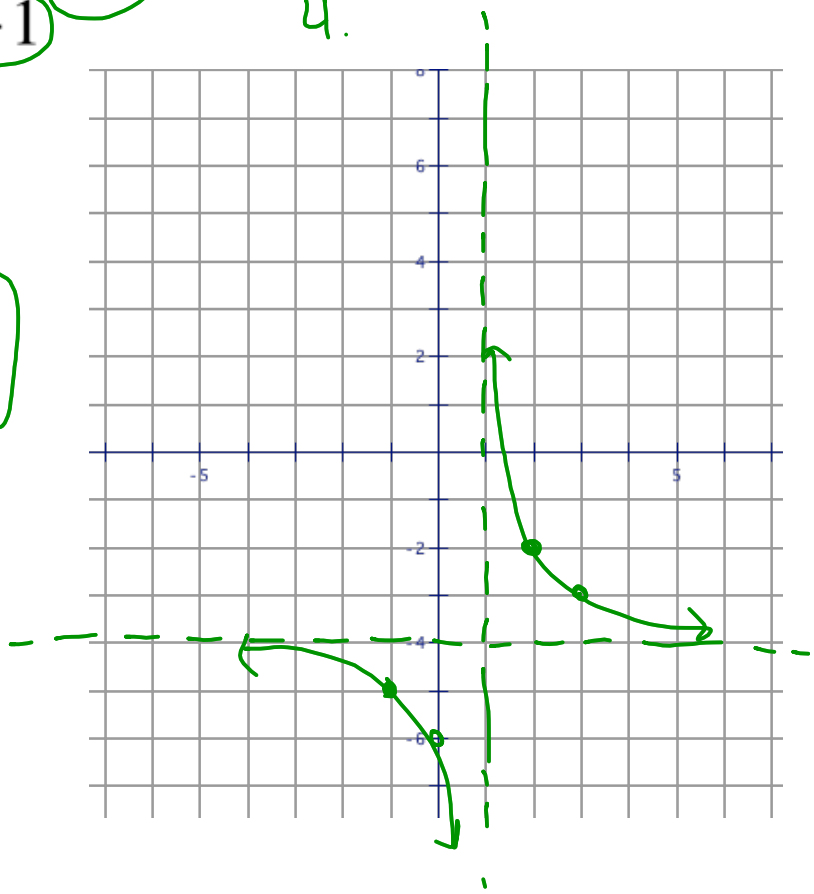
Ex#4: $f(x)=\frac{2}{x-1}-4$

stretch 2

shift down 4.

shift right 1

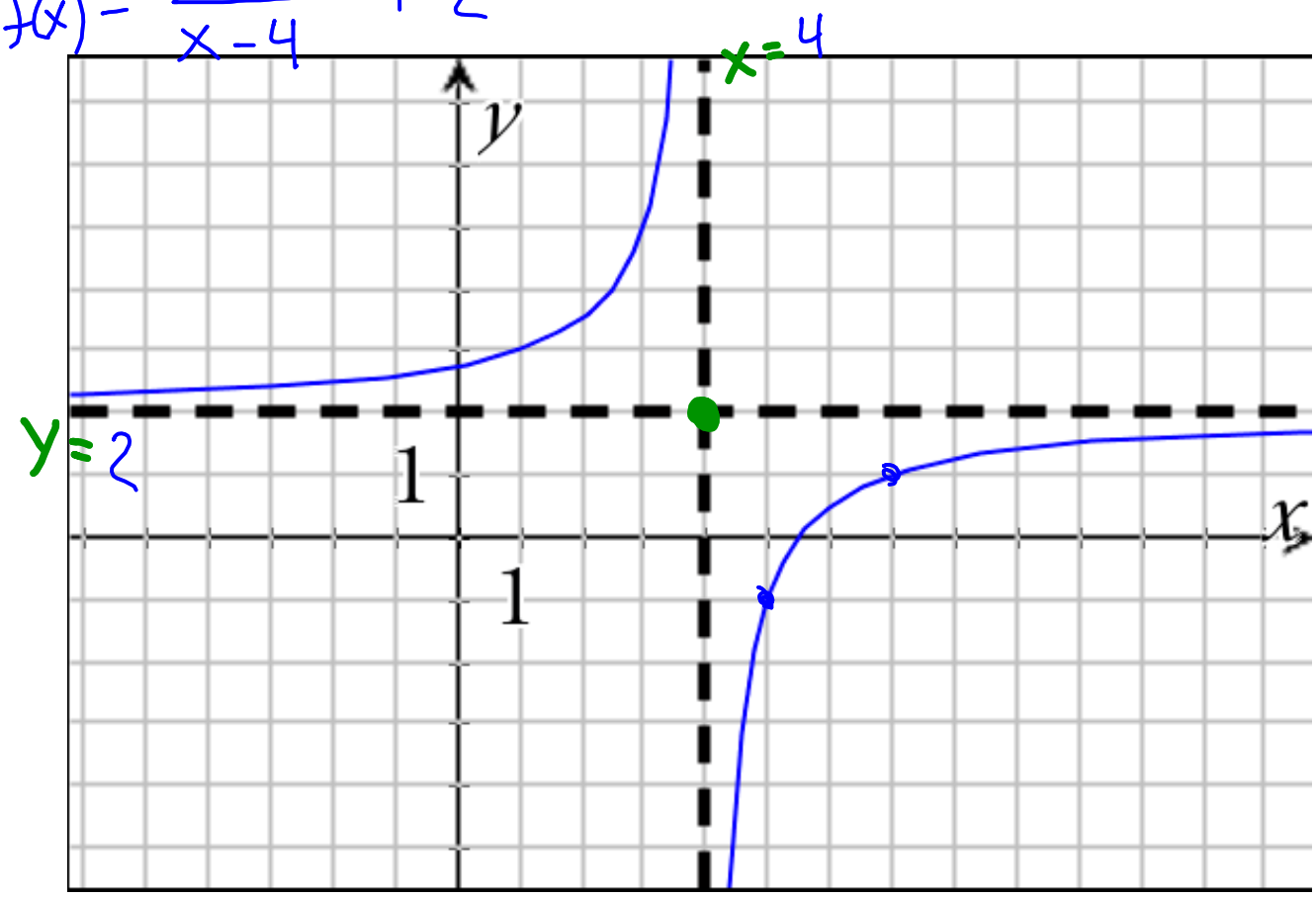
$f(x)=\frac{2}{x}$



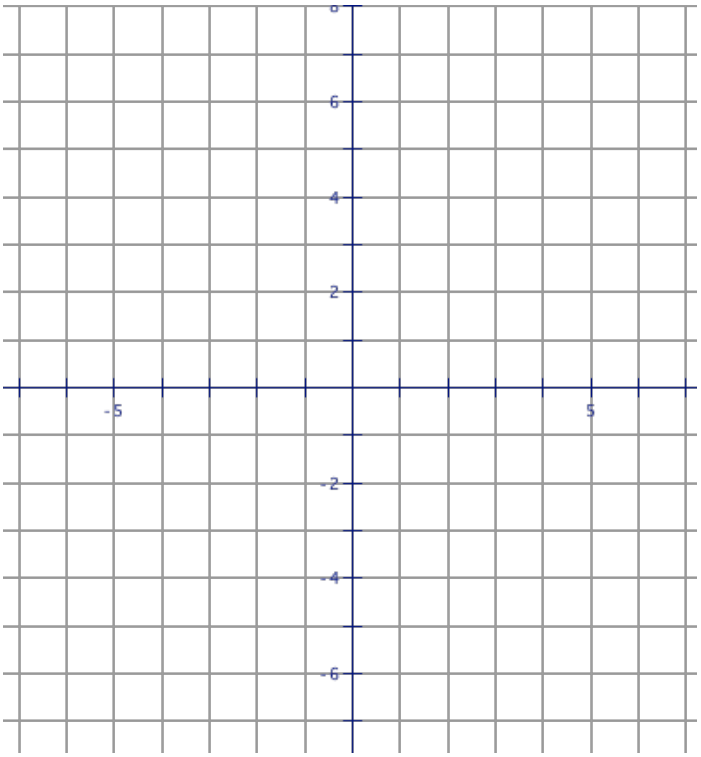
$x=1$

$y=-4$

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



Ex#5: Graph $f(x)=\dfrac{x+2}{x-1}$



Assignment:
page 548 #9, 15, 17, 21, 23, 25, 29, 38, 41