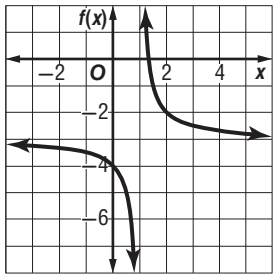
NAME _____ DATE _____ PERIOD _____

8-3 Practice

Graphing Reciprocal Functions

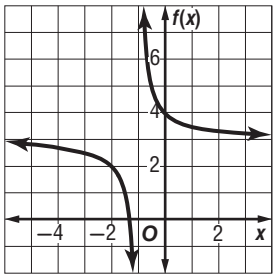
Identify the asymptotes, domain, and range of each function.

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



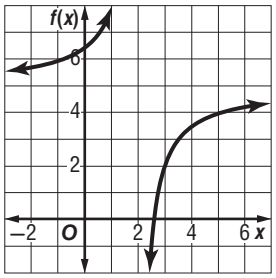
$x = 1$; $f(x) = -3$
$D = \{x \mid x \neq 1\}$
$R = \{f(x) \mid f(x) \neq -3\}$

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



$x = -1$; $f(x) = 3$
$D = \{x \mid x \neq -1\}$
$R = \{f(x) \mid f(x) \neq 3\}$

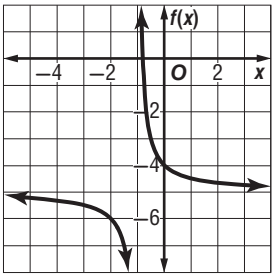
3. $f(x) = \frac{-3}{x-2} + 5$



$x = 2$; $f(x) = 5$
$D = \{x \mid x \neq 2\}$
$R = \{f(x) \mid f(x) \neq 5\}$

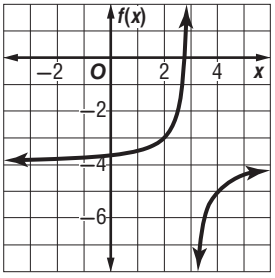
Graph each function. State the domain and range.

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



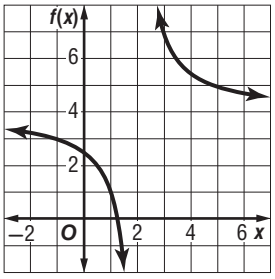
$D = \{x \mid x \neq -1\}$
$R = \{f(x) \mid f(x) \neq -5\}$

5. $f(x) = \frac{-1}{x-3} - 4$



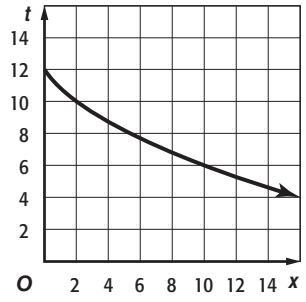
$D = \{x \mid x \neq 3\}$
$R = \{f(x) \mid f(x) \neq -4\}$

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



$D = \{x \mid x \neq 2\}$
$R = \{f(x) \mid f(x) \neq 4\}$

7. RACE Kate enters a 120-mile bicycle race. Her basic rate is 10 miles per hour, but Kate will average x miles per hour faster than that. Write and graph an equation relating x (Kate's speed beyond 10 miles per hour) to the time it would take to complete the race. If she wanted to finish the race in 4 hours instead of 5 hours, how much faster should she travel?



$t = \frac{120}{x+10}$;
6 miles per hour