Name: _____

Rational Functions

Exercise 1: Find the equations of any vertical, horizontal, or oblique asymptotes for the graph of each rational function.

1) $y = \frac{x-2}{2x-8}$

2) $y = \frac{x+3}{x+2}$

3) $y = \frac{4}{x^2+7x+12}$

4) $y = \frac{x+1}{x^2-9}$

5) $y = \frac{x+1}{x^2+5x+6}$

6) $y = \frac{5}{x^2-9}$

7) $y = \frac{x-7}{x^2-x-20}$

8) $y = \frac{4x-8}{x^2-100}$

9) $y = \frac{3x+1}{x^2-7x-30}$

10) $y = \frac{3x^2-1}{4x^2-9}$

11) $y = \frac{4x^2}{x^2+1}$

12) $y = \frac{2x^2+5}{4x^2+3}$

Exercise 2: The population *P* for an insect *t* months after being transplanted is $P(t) = \frac{50(1+0.5t)}{(2+0.01t)}$. Determine the horizontal asymptote of *P*(t). Describe this in the context of the problem.

Exercise 3: A company that produces scooters has an average cost given by the function $\overline{C}(x) = \frac{50x+30001}{2x}$. What is the horizontal asymptote for the function $\overline{C}(x)$? Describe this in the context of the problem.