

Rational Functions

9/24/2014 _____ Period _____

Identify the holes, vertical asymptotes, horizontal asymptote, and domain and range.

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

2) $f(x) = \frac{x^2 - 16}{-4x - 4}$

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

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

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

6) $f(x) = \frac{x^2 + 2x - 3}{-4x^2 + 16x - 12}$

Identify the horizontal asymptote and range of each.

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

8) $f(x) = \frac{x^2 + 7x + 12}{-4x^2 + 8x + 12}$

9) $f(x) = \frac{-2x - 2}{x - 1}$

10) $f(x) = \frac{x^2 - 5x + 6}{-2x^2 - 6x}$

Identify the horizontal asymptote and the range of each.

11) $f(x) = \frac{3x^3 + 9x^2}{x^3 + x^2 - 6x}$