

**RATIONAL FUNCTIONS AND THEIR GRAPHS** Assignment

Find the domain of each rational function. Identify all asymptotes and point of discontinuity in the graph of each rational function.

1.  $r(x) = \frac{3x-1}{4x^2-9}$

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

2.  $R(x) = \frac{2x^2-1}{x^2-9}$

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

3.  $f(x) = \frac{(x-3)^2}{x^2-5x+6}$

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

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

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

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

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

6.  $f(x) = \frac{x+3}{x^2+7x+12}$

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

7.  $f(x) = \frac{x-5}{x^2-4x-5}$

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

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8.  $f(x) = \frac{x^2 - 8x + 16}{x - 4}$

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

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

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

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

Domain : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

**Graph the rational function and show all asymptotes and point of discontinuity.**

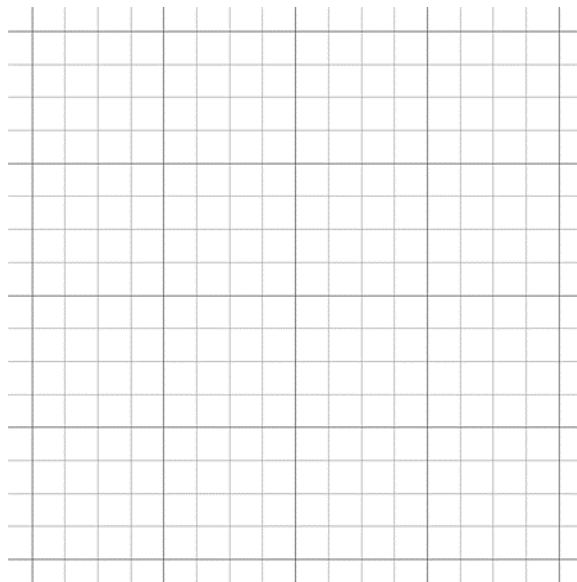
11.  $f(x) = \frac{-5}{x+1}$

Vertical Asymptote : \_\_\_\_\_

Horizontal Asymptote : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

$x$	$y$



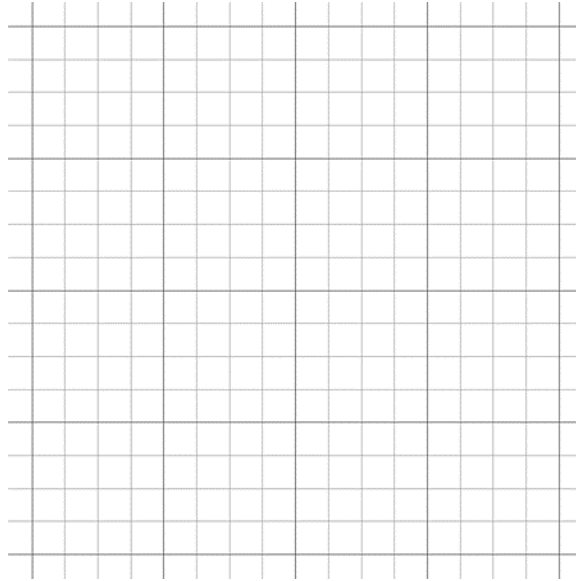
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12.  $f(x) = \frac{x+4}{x-1}$

Vertical Asymptote : \_\_\_\_\_ Horizontal Asymptote : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

$x$	$y$

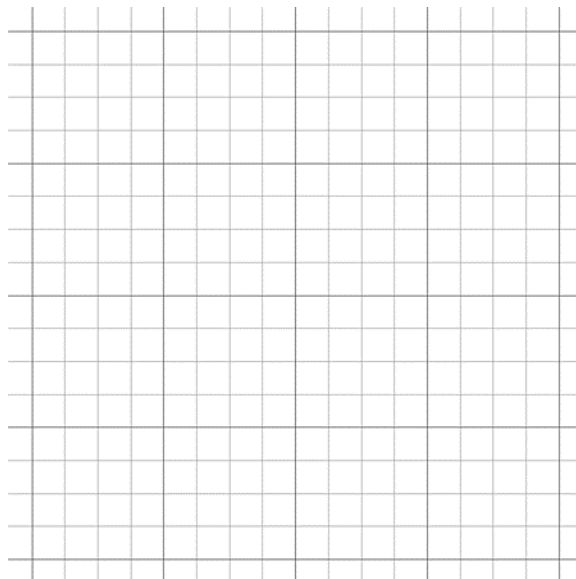


13.  $f(x) = \frac{x^2-1}{x-1}$

Vertical Asymptote : \_\_\_\_\_ Horizontal Asymptote : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

$x$	$y$



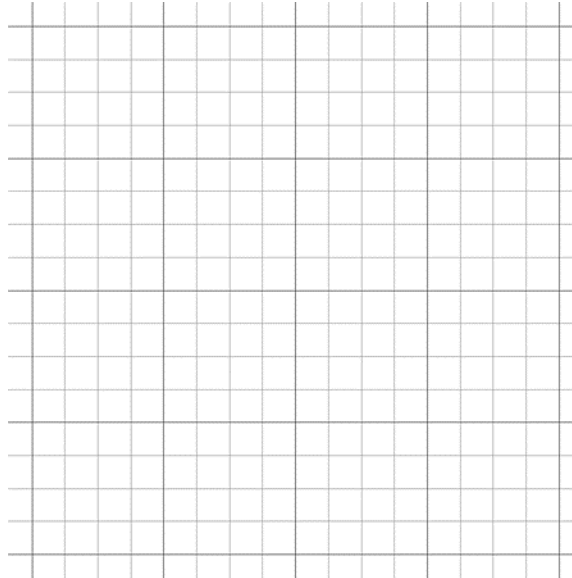
# RATIONAL FUNCTIONS AND THEIR GRAPHS Assignment

14.  $f(x) = \frac{x}{x^2-1}$

Vertical Asymptote : \_\_\_\_\_ Horizontal Asymptote : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

$x$	$y$



15.  $f(x) = \frac{6}{(x-6)^2}$

Vertical Asymptote : \_\_\_\_\_ Horizontal Asymptote : \_\_\_\_\_

Point of Discontinuity : \_\_\_\_\_

$x$	$y$

