

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

Find the characteristics listed for each rational function. Graph using an x/y table.

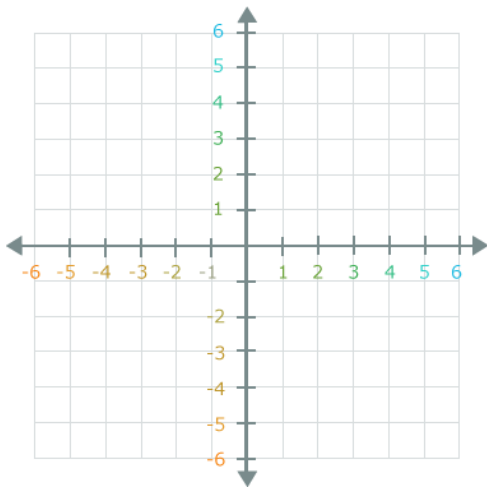
1)  $f(x) = \frac{4}{x-1} - 2$

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

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

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

Range: \_\_\_\_\_



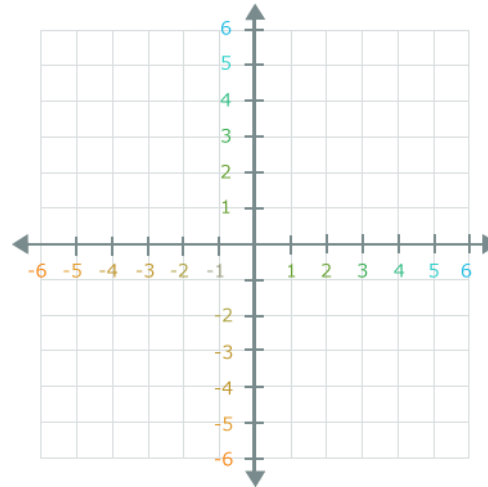
2)  $f(x) = -\frac{3}{x} + 3$

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

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

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

Range: \_\_\_\_\_



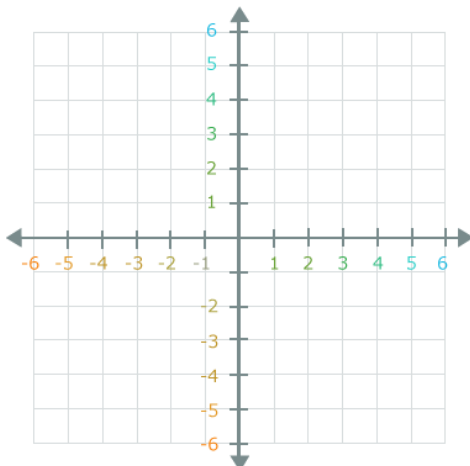
3)  $f(x) = \frac{1}{x-6} + 2$

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

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

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

Range: \_\_\_\_\_



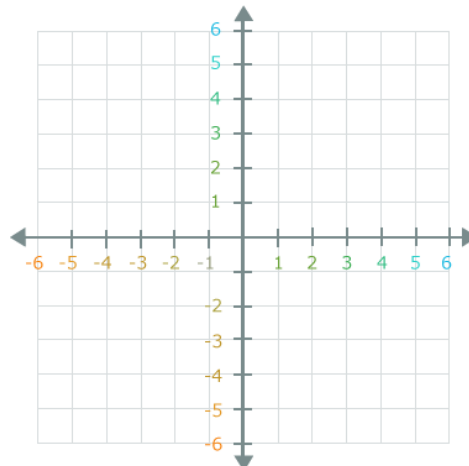
4)  $f(x) = -\frac{1}{x} + 7$

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

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

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

Range: \_\_\_\_\_



**For problems 5-7, write a rational function given the characteristics.**

5) zeros at 5 & -2, vertical asymptote at  $x=-7$ , hole at  $x=0$ .

6) zeros at 0 and -6, vertical asymptote at  $x=5$  and  $-5$ , horizontal asymptote at  $y=1$

7) zero at  $x=1$ , hole at  $x=-8$ .

**For problems 8-10, you must a) re-write each function in the form of  $f(x) = \frac{a}{x-h} + k$  and b) describe the transformations from the parent graph of  $f(x) = \frac{1}{x}$**

8)  $f(x) = \frac{x-3}{x-7}$

9)  $f(x) = \frac{8x}{x+6}$

10)  $f(x) = \frac{5x-4}{x-2}$

Find the characteristics listed for each rational function. Graph using a graphing calculator.

11)  $f(x) = \frac{4x^2-4}{2x^2-18}$

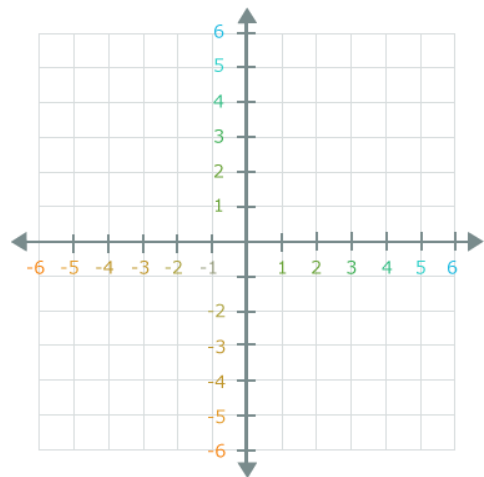
Hole(s): \_\_\_\_\_

Zero(s): \_\_\_\_\_

Vertical Asymptote(s): \_\_\_\_\_

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

Slant Asymptote: \_\_\_\_\_



12)  $f(x) = \frac{x^2-x-20}{x-5}$

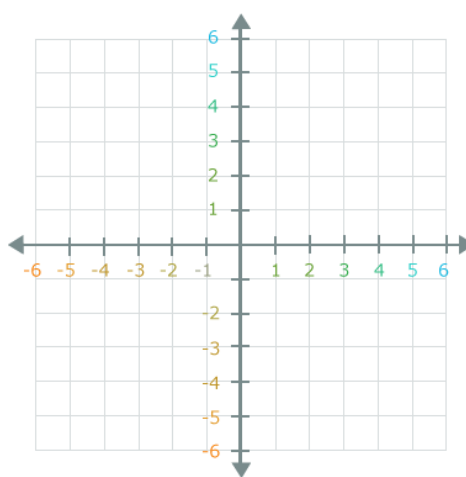
Hole(s): \_\_\_\_\_

Zero(s): \_\_\_\_\_

Vertical Asymptote(s): \_\_\_\_\_

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

Slant Asymptote: \_\_\_\_\_



13)  $f(x) = \frac{4x+8}{3x^2-12}$

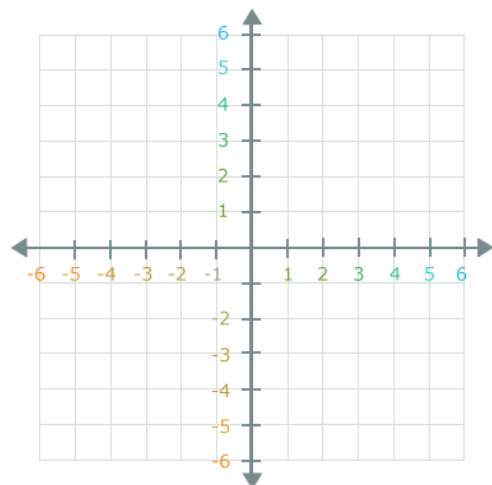
Hole(s): \_\_\_\_\_

Zero(s): \_\_\_\_\_

Vertical Asymptote(s): \_\_\_\_\_

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

Slant Asymptote: \_\_\_\_\_



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

Hole(s): \_\_\_\_\_

Zero(s): \_\_\_\_\_

Vertical Asymptote(s): \_\_\_\_\_

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

Slant Asymptote: \_\_\_\_\_

