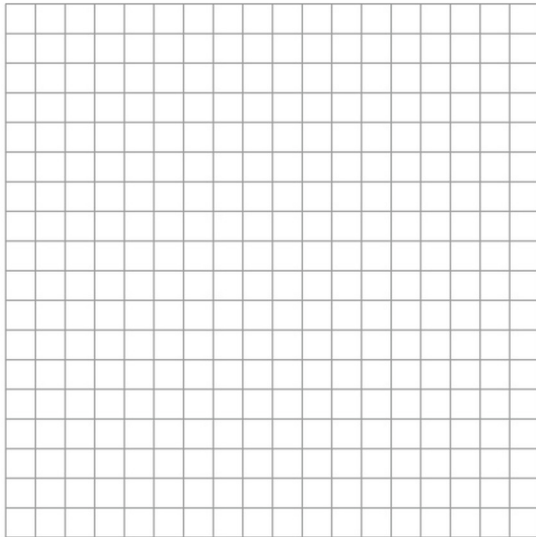


Name: _____

Rational Functions: Graphing Worksheet

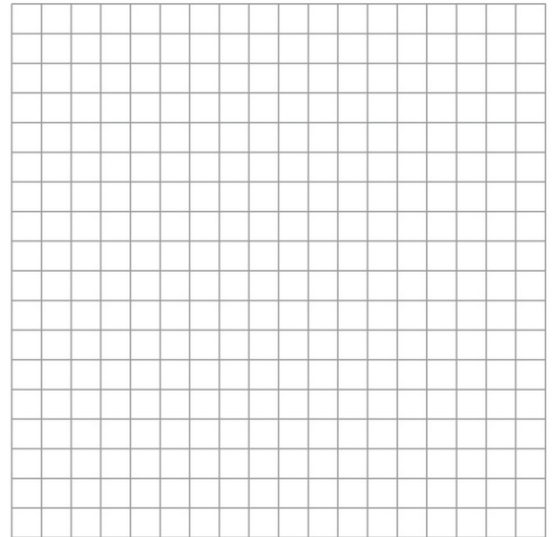
Identify the holes, vertical asymptote(s), and horizontal asymptote(s) of each function. Then, sketch the graph

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



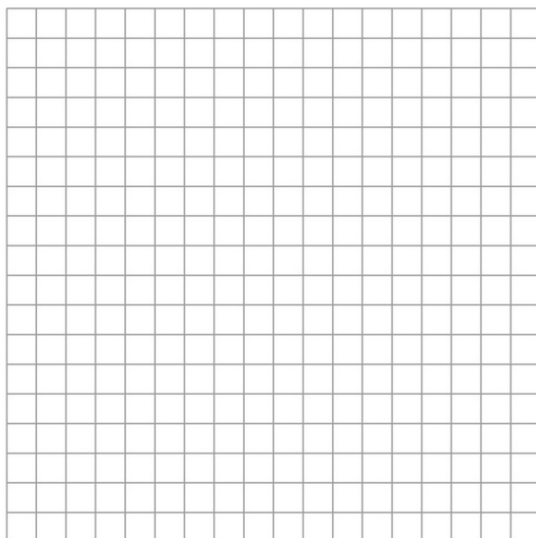
Holes: _____
Vertical asymptotes: _____
Horizontal asymptotes: _____

2 $f(x) = \frac{x^3 - 16x}{-3x^2 + 3x + 18}$



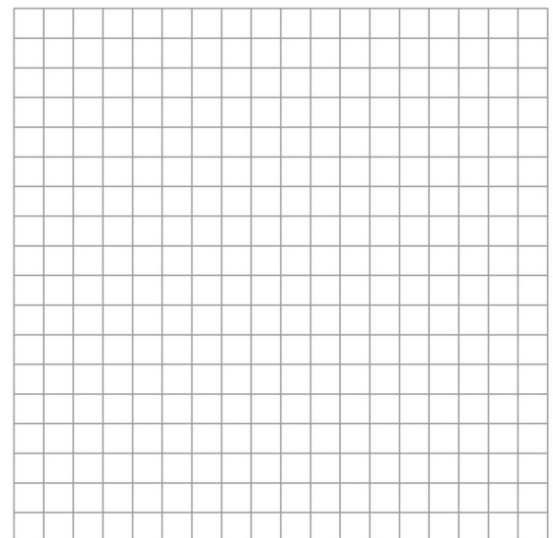
Holes: _____
Vertical asymptotes: _____
Horizontal asymptotes: _____

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



Holes: _____
Vertical asymptotes: _____
Horizontal asymptotes: _____

4 $f(x) = \frac{x^3 - 6x^2 + 8x}{-3x^2 + 9x - 6}$

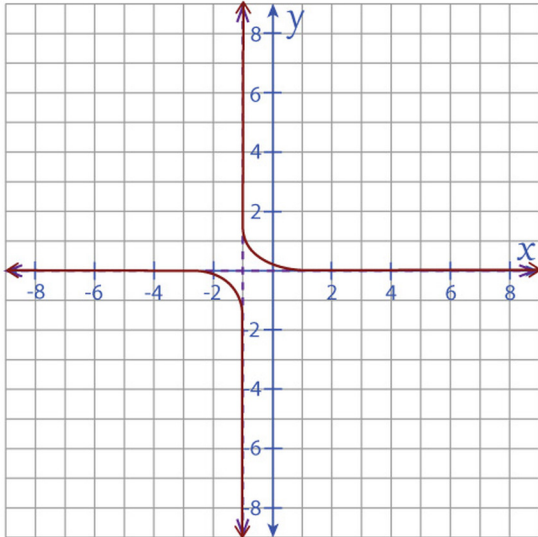


Holes: _____
Vertical asymptotes: _____
Horizontal asymptotes: _____

Rational Functions: Graphing Worksheet

Answers

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

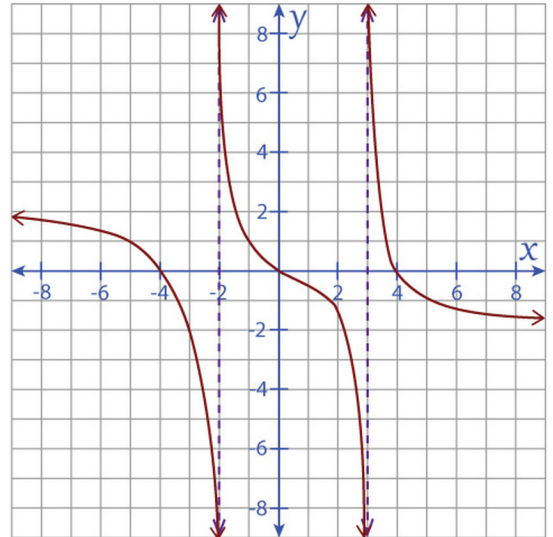


Holes: None

Vertical asymptotes: $x = -1$

Horizontal asymptotes: $y = 0$

$$\textcircled{2} f(x) = \frac{x^3 - 16x}{-3x^2 + 3x + 18}$$

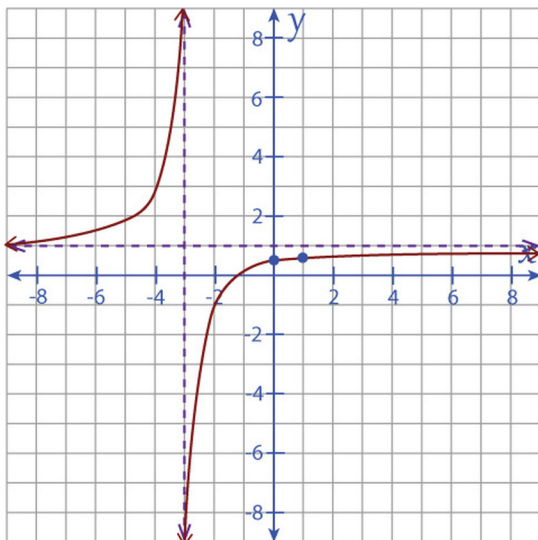


Holes: None

Vertical asymptotes: $x = 3, x = -2$

Horizontal asymptotes: None

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

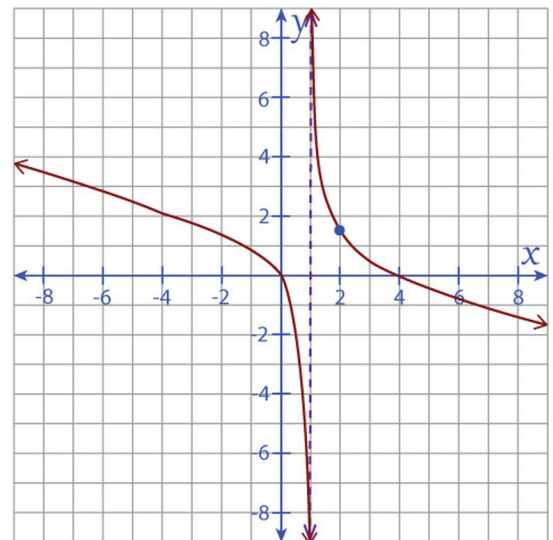


Holes: $x = 0, x = 1$

Vertical asymptotes: $x = -3$

Horizontal asymptotes: $y = 1$

$$\textcircled{4} f(x) = \frac{x^3 - 6x^2 + 8x}{-3x^2 + 9x - 6}$$



Holes: $x = 2, x = \frac{4}{3}$

Vertical asymptotes: $x = 1$

Horizontal asymptotes: None