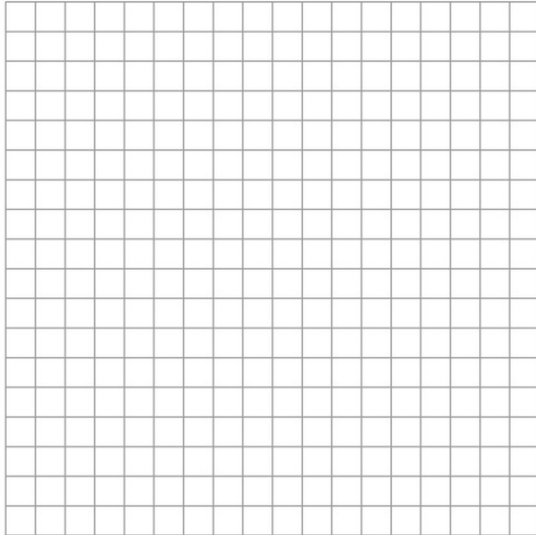


Name: _____

Graphing Rational Functions Worksheet

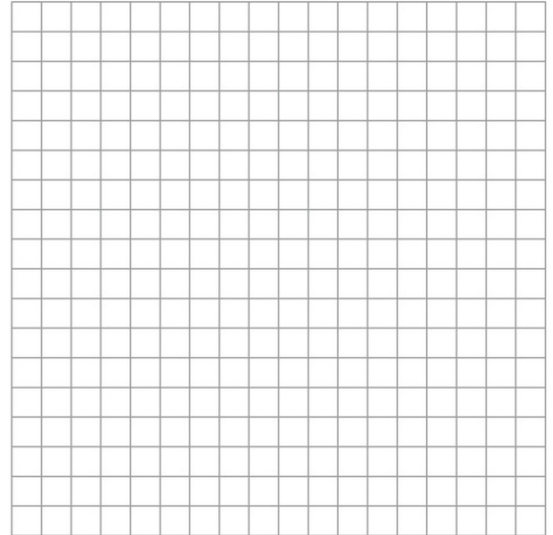
Identify the holes, vertical asymptotes, x-intercepts, horizontal asymptote, and domain of each function. Then sketch the graph

① $f(x) = \frac{3x + 6}{x + 3}$



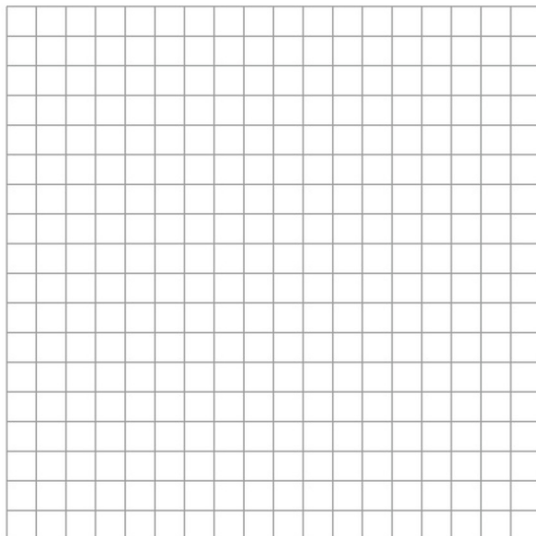
Holes: _____ x-intercepts: _____
Vertical asymptotes: _____
Horizontal asymptotes: _____
Domain: _____

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



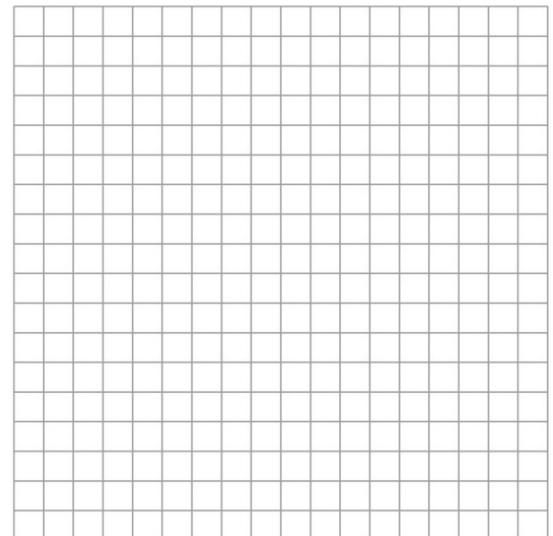
Holes: _____ x-intercepts: _____
Vertical asymptotes: _____
Horizontal asymptotes: _____
Domain: _____

③ $f(x) = -\frac{1}{x}$



Holes: _____ x-intercepts: _____
Vertical asymptotes: _____
Horizontal asymptotes: _____
Domain: _____

④ $f(x) = \frac{1}{-x + 4}$

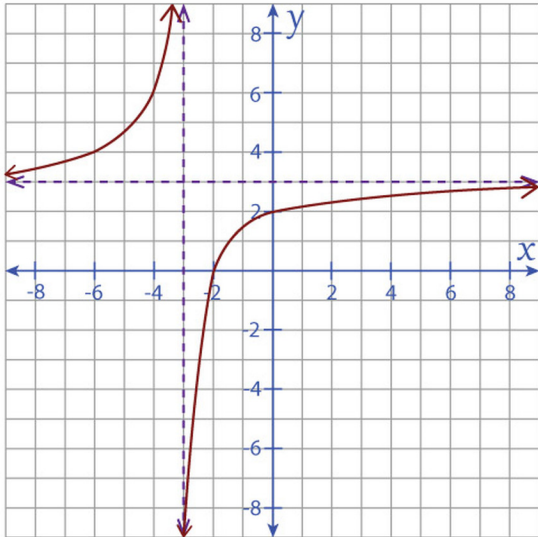


Holes: _____ x-intercepts: _____
Vertical asymptotes: _____
Horizontal asymptotes: _____
Domain: _____

Graphing Rational Functions Worksheet

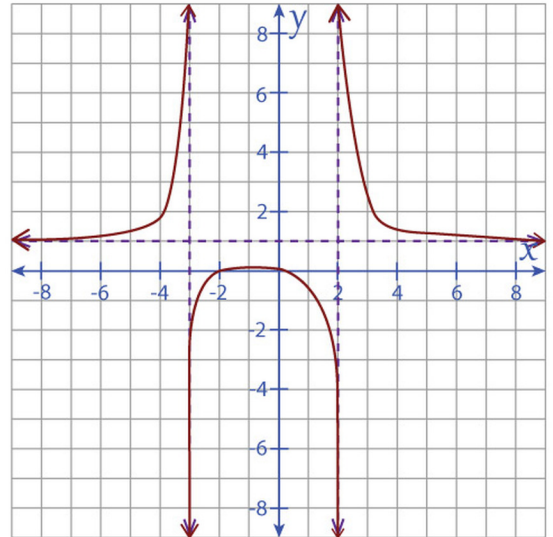
Answers

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



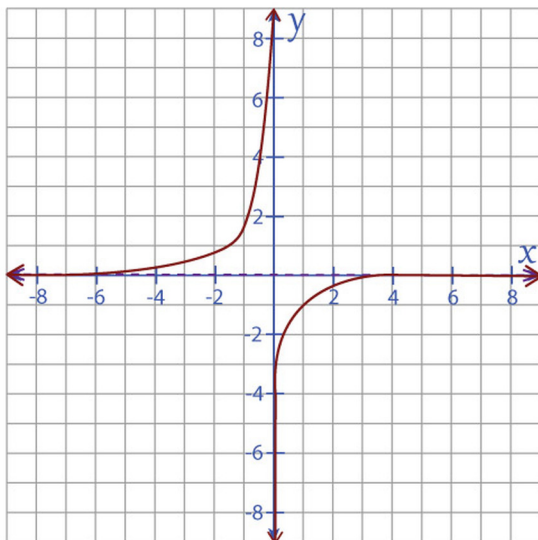
Holes: None x-intercepts: -2
 Vertical asymptotes: $x = -3$
 Horizontal asymptotes: $y = 3$
 Domain: All reals except -3

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



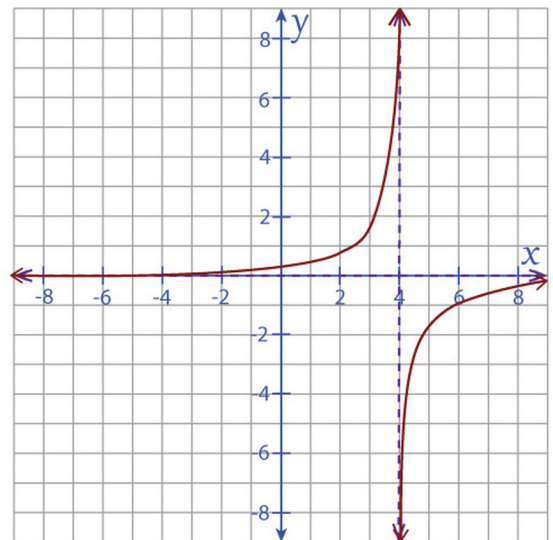
Holes: None x-intercepts: 0, -2
 Vertical asymptotes: $x = 2, x = -3$
 Horizontal asymptotes: $y = 1$
 Domain: All reals except 2, -3

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



Holes: None x-intercepts: None
 Vertical asymptotes: $x = 0$
 Horizontal asymptotes: $y = 0$
 Domain: All reals except 0

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



Holes: None x-intercepts: None
 Vertical asymptotes: $x = 4$
 Horizontal asymptotes: $y = 0$
 Domain: All reals except 4