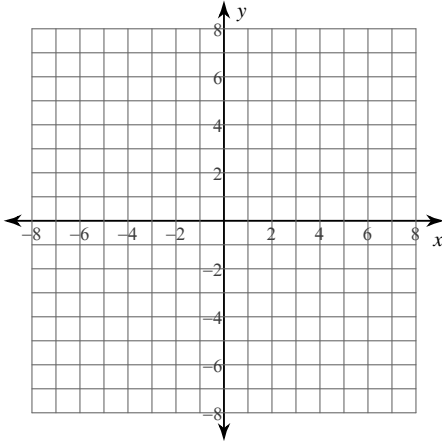


## Graphing Rational

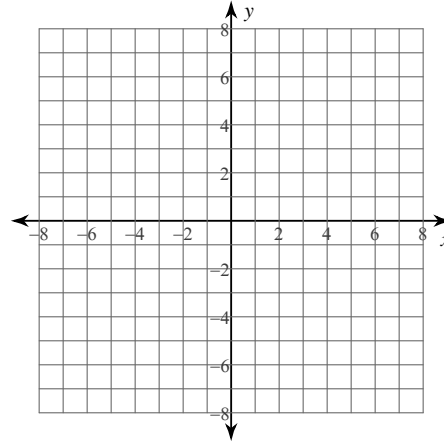
© 2014 Kuta Software LLC. All rights reserved.

**Identify the holes, vertical asymptotes, and horizontal asymptote of each. Then sketch the graph.**

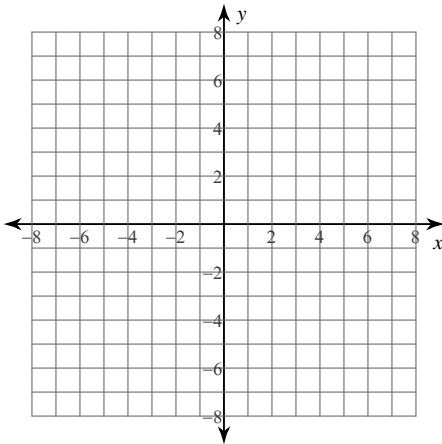
1)  $f(x) = \frac{4}{x-4}$



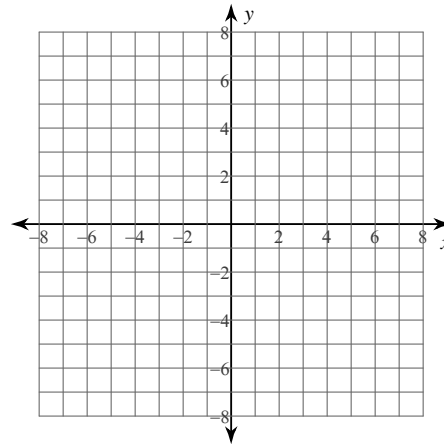
2)  $f(x) = \frac{x^2 - 2x - 8}{-3x^2 + 15x - 12}$



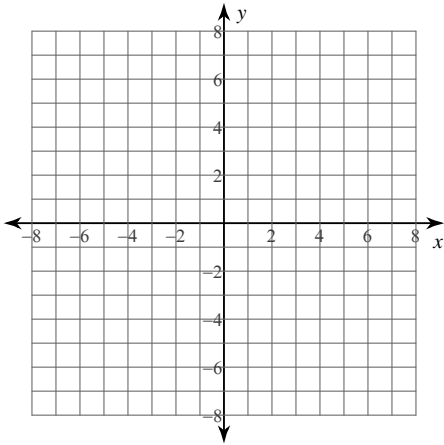
3)  $f(x) = \frac{3x+9}{x^2+x-2}$



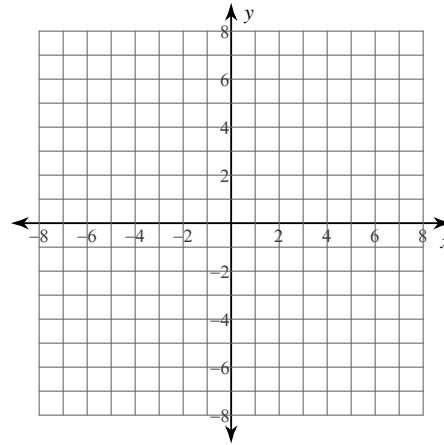
4)  $f(x) = \frac{x^2 - 4x}{4x^2 + 12x}$



$$5) f(x) = \frac{x^3 - 2x^2 - 8x}{3x^2 - 3x - 36}$$



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

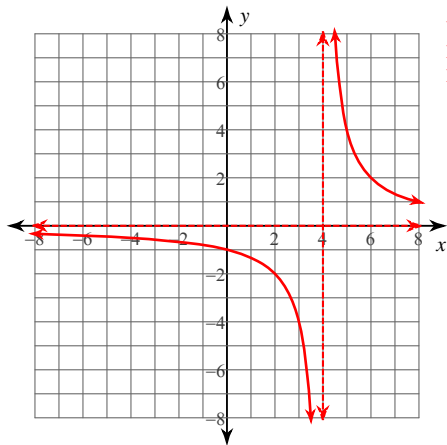


## Graphing Rational

© 2014 Kuta Software LLC. All rights reserved.

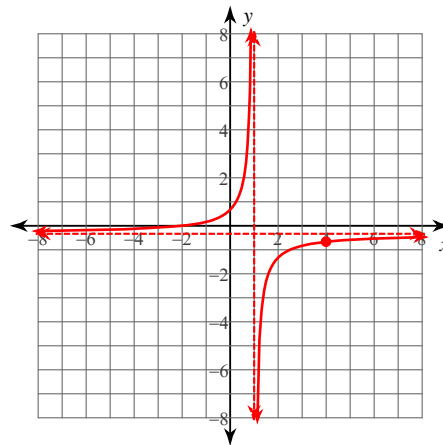
**Identify the holes, vertical asymptotes, and horizontal asymptote of each. Then sketch the graph.**

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



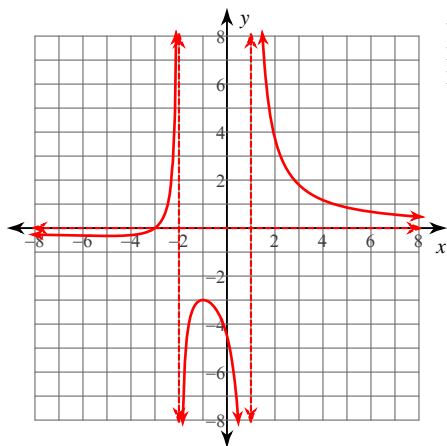
Vertical Asym.:  $x = 4$   
 Holes: None  
 Horz. Asym.:  $y = 0$

2)  $f(x) = \frac{x^2 - 2x - 8}{-3x^2 + 15x - 12}$



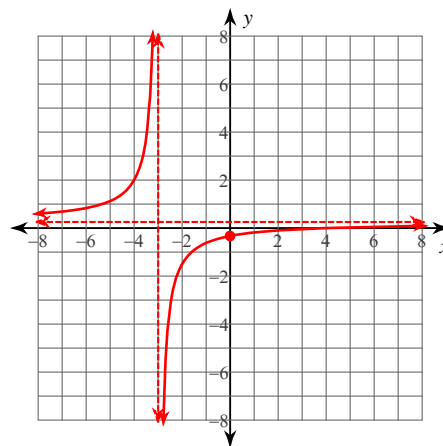
Vertical Asym.:  $x = 1$   
 Holes:  $x = 4$   
 Horz. Asym.:  $y = -\frac{1}{3}$

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



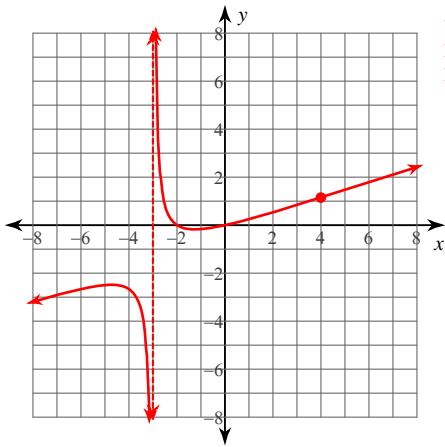
Vertical Asym.:  $x = -2, x = 1$   
 Holes: None  
 Horz. Asym.:  $y = 0$

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



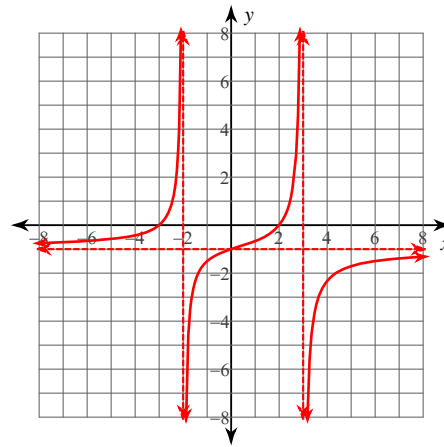
Vertical Asym.:  $x = -3$   
 Holes:  $x = 0$   
 Horz. Asym.:  $y = \frac{1}{4}$

$$5) f(x) = \frac{x^3 - 2x^2 - 8x}{3x^2 - 3x - 36}$$



Vertical Asym.:  $x = -3$   
 Holes:  $x = 4$   
 Horz. Asym.: None

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



Vertical Asym.:  $x = -2, x = 3$   
 Holes: None  
 Horz. Asym.:  $y = -1$