Pre-Calculus
Graphing Rational Functions

Name _____
Hour ____

For the following functions, find:

(a) the *x*-intercepts, y-intercepts
(b) the vertical asymptote(s)
(c) the horizontal asymptote
(d) the holes
(e) any additional points needed
(f) then, graph the function.

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

2. $y = \dfrac{8}{x^2 - x - 6}$

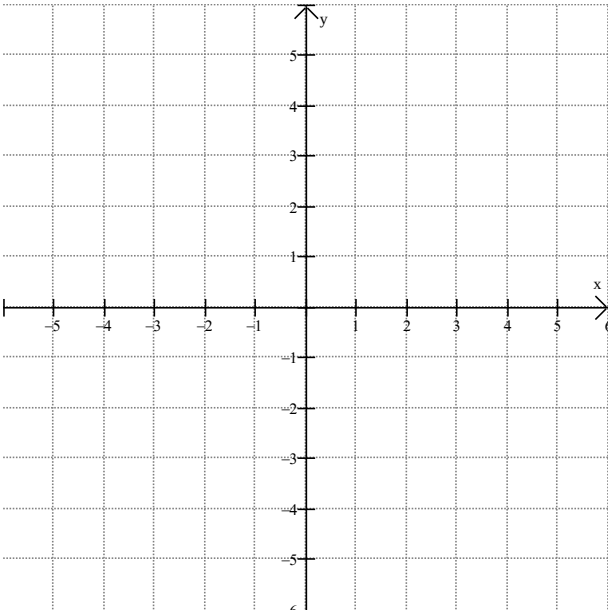
3. $f(x) = \dfrac{x^2 + 5x + 6}{x + 3}$

4. $y = \dfrac{x^2 - 5x + 6}{x^2 - 4x + 3}$

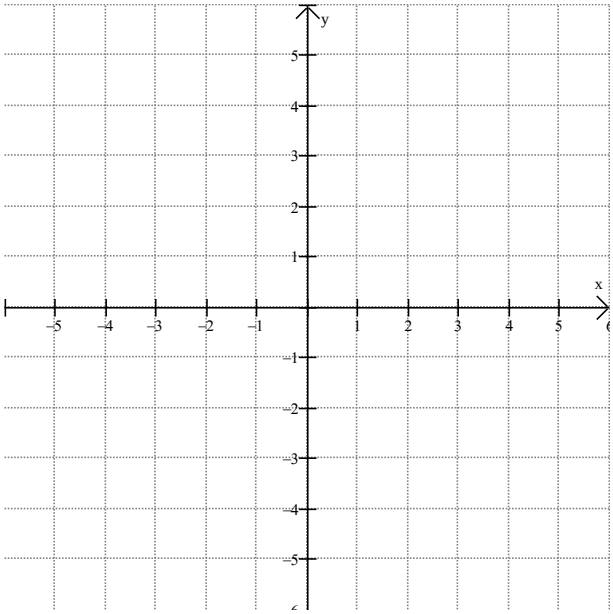
5. $y = \dfrac{x^2 + 11x + 18}{2x + 1}$

6. $g(x) = \dfrac{x - 4}{x^2 - 3x}$

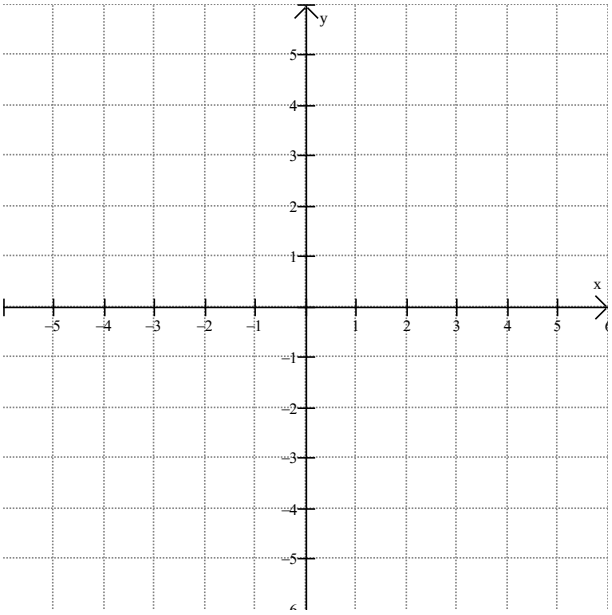
1.



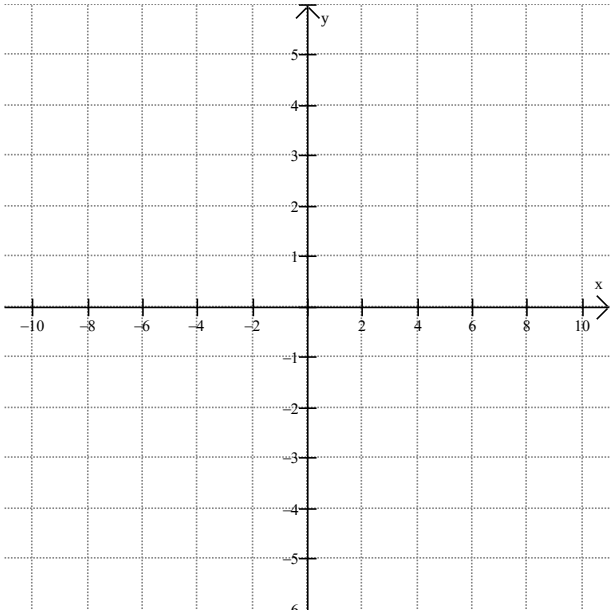
2.



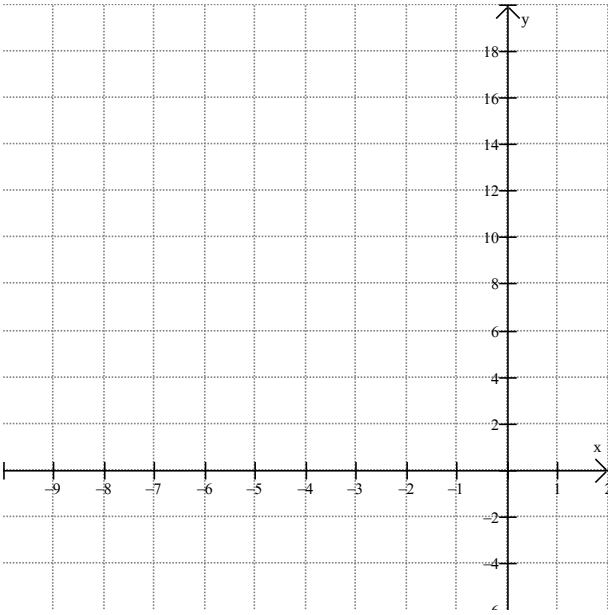
3.



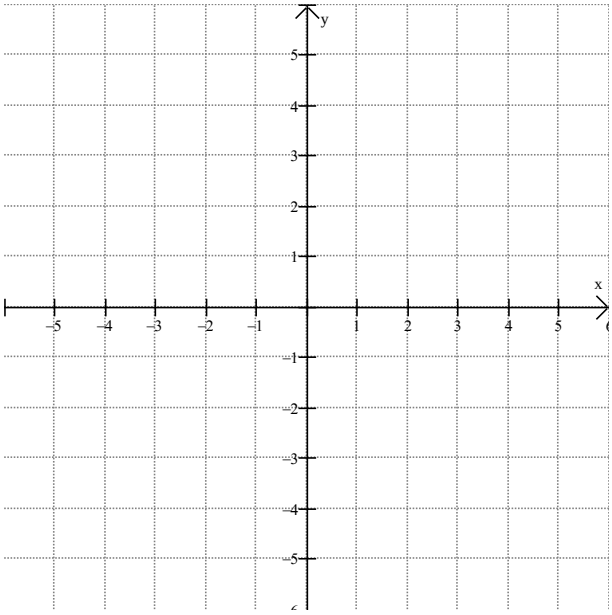
4.



5.



6.



7. Write a rational function that has a vertical asymptote at x = 1, a point discontinuity at x = -1 and a horizontal asymptote at y = 0.

8. Write a rational function that has a horizontal asymptote at y = 3, no vertical asymptotes and a point discontinuity at x = 4.

9. Write a rational function that has no horizontal asymptote and a zero at x = -2.