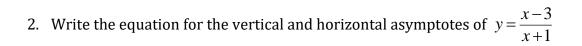
## **Asymptotes**

**Skills:** Find limits at infinity. Find Domain of a function.

Outcomes: Find where vertical and horizontal asymptotes exist on a graph.

- 1. Given the function  $f(x) = \frac{3x-2}{x-1}$ 
  - a) Sketch the function.
  - b) Write the equation for the horizontal asymptote of the function  $f(x) = \frac{3x-2}{x-1}$
  - c) Write the equation for the vertical asymptote of the function  $f(x) = \frac{3x-2}{x-1}$



3. Write the equation for the vertical and horizontal asymptotes of 
$$f(x) = \frac{x}{x^2 - x - 6}$$

4. Write the equation for the vertical and horizontal asymptotes of 
$$f(x) = \frac{4x^2 - x + 2}{6x^2 + 5x + 1}$$

5. Given: 
$$f(x) = \frac{x^2 - 6x + 8}{x^2 - x}$$

- a) Write the equation for the vertical and horizontal asymptotes of  $f(x) = \frac{x^2 6x + 8}{x^2 x}$ b) Can a function cross a horizontal asymptote? Sketch  $f(x) = \frac{x^2 6x + 8}{x^2 x}$

**Homework:** Page 223 #1, 4