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 $f(x)=\frac{3x-2}{x-1}$

2. Write the equation for the vertical and horizontal asymptotes of $y=\frac{x-3}{x+1}$

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