

**Aim: How do we graph rational functions?****I. Do Now:**

1. Find all horizontal and vertical asymptotes.

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

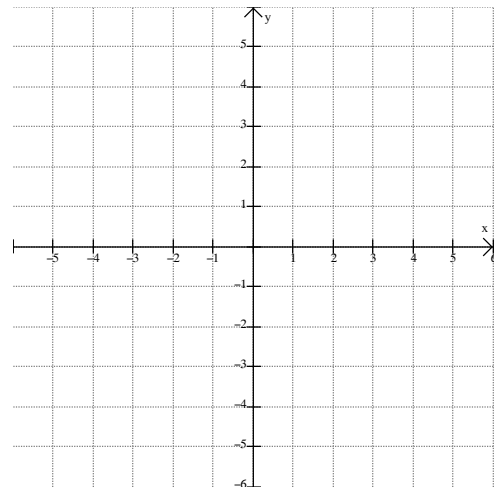
(b)  $g(x) = \frac{2x}{x^2+1}$

(c)  $h(x) = \frac{4x^2}{2x^2+1}$

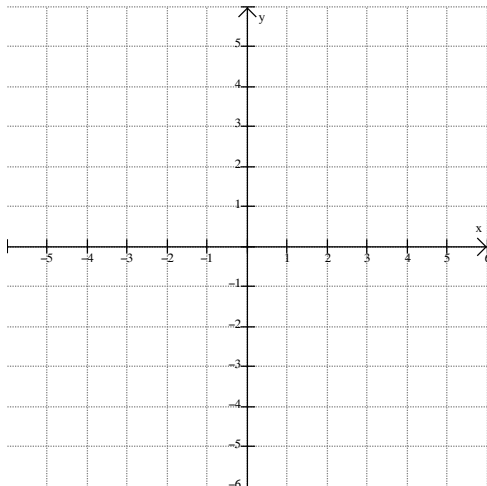
(d)  $h(x) = \frac{x^3}{2x^2-18}$

**II. Motivation:** How do we graph a rational function like  $f(x) = \frac{1}{x-2}$  without using the graphing calculator?Let  $f(x) = \frac{p(x)}{q(x)}$ , where  $p(x)$  and  $q(x)$  are polynomials with no common factors.Use the following suggestions to graph  $f(x)$ :

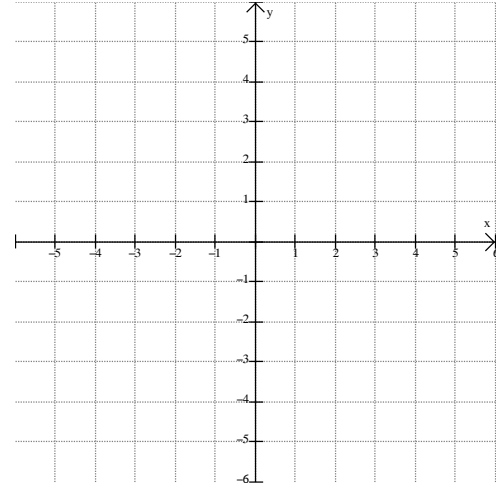
- 1.
- 2.
- 3.
- 4.
- 5.

**III. Practice:** Sketch the graph of each rational function.

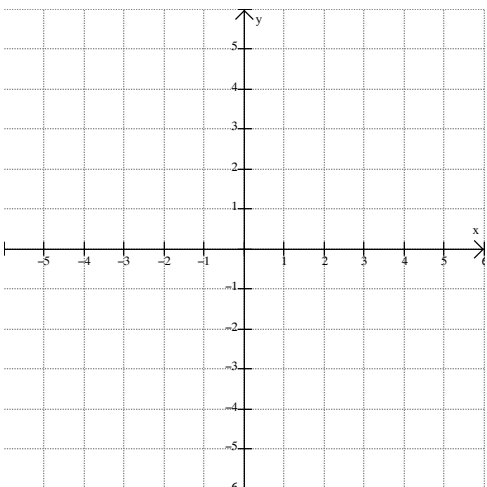
2.  $f(x) = \frac{2x-1}{x}$



3.  $f(x) = \frac{4}{x+3}$



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

**HW37**

- Read pages 151 – 153.
- p. 157: 17, 18, 19, 20  
(use graph paper)
- p. 141: 62
- p. 147: 13, 14, 18, 19, 20