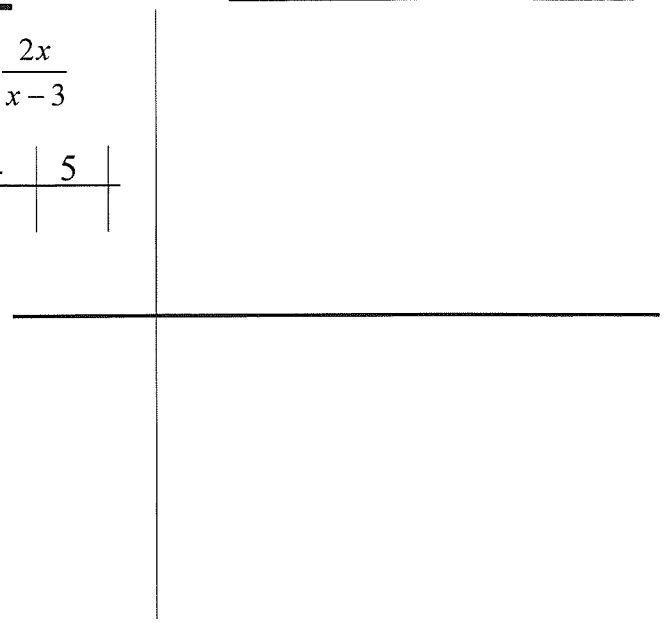
Practice 4.4 Asymptotes:

Name _____

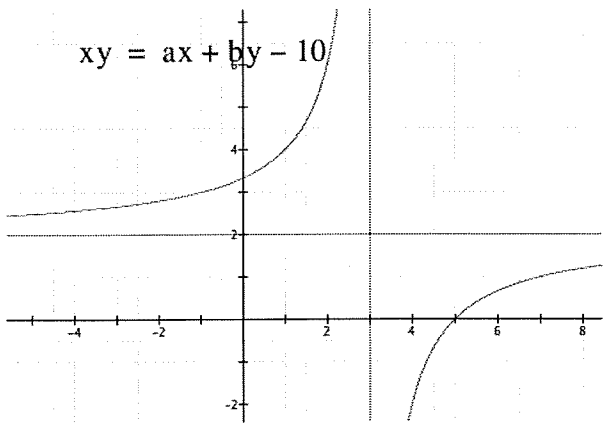
1. Complete the table and graph for: $f(x) = \dfrac{2x}{x-3}$

x	1	2	2.5	2.9	2.99	3.01	3.1	3.5	4	5
y										

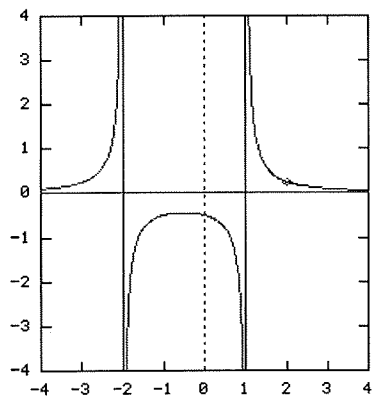


2. Find the equations of the asymptotes (horizontal, vertical or slant) on each graph.

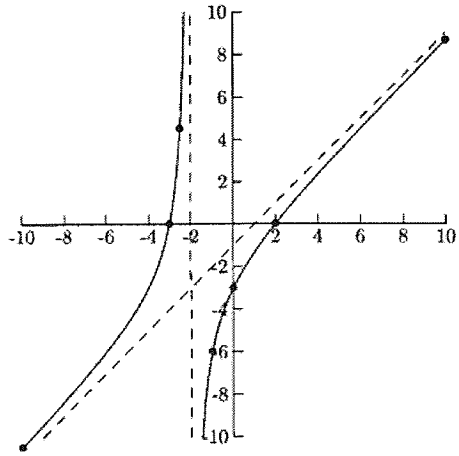
a.



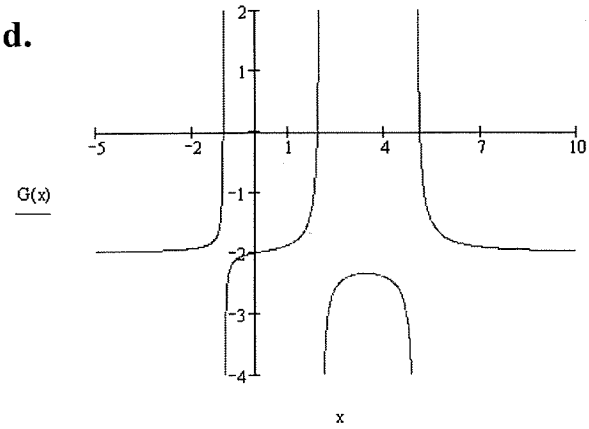
b.



c.



d.



3. **Find the equations for all the Vertical, Horizontal and Slant Asymptotes of the following Rational Functions. Use them to sketch a graph of the function.**

a. $f(x)=\frac{1}{x^2}$ V:

H/S:

b. $g(x)=\frac{1-2x}{1-5x}$ V:

H/S:

c. $h(x)=\frac{x^3}{x^2-1}$ V:

H/S:

d. $j(x)=\frac{x-4}{x^2+4x-12}$ V:

H/S:

e. $f(x)=\frac{x^2+2x-8}{x+1}$ V:

H/S:

f. $k(x)=\frac{2x^2+1}{x^2+4}$ V:

H/S:

4. **Find the vertical asymptotes of each pair of functions. Graph and compare the two functions on the same window using a graphing calculator.**

a. $f(x)=\frac{x^2-4}{x+2}$ V:

$g(x)=x-2$ V:

b. $f(x)=\frac{2x-8}{x^2-9x-20}$ V:

$g(x)=\frac{2}{x-5}$ V:

5. **The cost of removing *p%* of pollutants from the Columbia River is given by the formula:** $C=\frac{255p}{100-p}$ **Where C is the cost in millions of dollars.** ***p*: [0, 100)**

a. The cost of removing 10%, 40%, and 75%.

b. According to this formula is it possible to remove 100%? Explain.