MATH 201 – LAB 1
Marc Thomas

Find the equation (in slope intercept form) of the line
1. through the point $(2, -3)$ with slope $6$
2. through the points $(-1, -2)$ and $(4, 3)$
3. through the point $(-2, -3)$ and perpendicular to the
   line with equation $y = (1/4)x + 7$.
4. Show that if a line is not horizontal and not vertical
   then it can be described by an equation of the form
   \[ \frac{x}{a} + \frac{y}{b} = 1 \]

What information do the constants $a$ and $b$ convey?

Sketch the graphs of the following functions
5. $f$ where $f(x) = |x - 3|$ 
6. $g$ where $g(x) = x^2 - 1$ 
7. $h$ where $h(x) = x^2 + 2x + 2$

Let $f(x) = 2x + 7$ and let $g(x) = x^2$.
8. Find the function $fg$ (i.e. $fg(x) = f(x)g(x)$).
9. Find the function $f \circ g$ (i.e. $f \circ g(x) = f(g(x))$).
10. Find the function $g \circ f$. Is this different from the
    function $f \circ g$?

11. Where is the function $f(x) = x/(x - 1)$ defined ?
    What happens if you choose $x$ slightly larger than 1 (e.g. $x = 1.00001$ )? What happens if you choose $x$ slightly smaller than 1 ? Try to sketch a graph of $f$. 