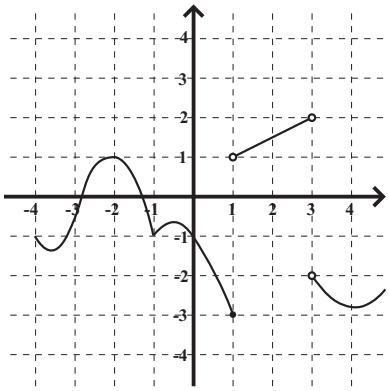
Math 151
In-class Worksheet

1. Find the formulas for the following lines.
   (a) The line through $(9, 5)$ and $(3, 2)$.
   (b) The line with slope 6 and x-intercept -2.
   (c) The line through $(-1, 3)$ parallel to $3x - 5y = 11$.

2. Let $f(x) = \cos x$ and $g(x) = x - 5$.
   (a) Find $f \circ g(5)$.
   (b) Find $g \circ f(\pi/2)$.
   (c) Sketch the graphs of $f(x)$, $3f(x)$, and $f(3x)$.

3. Find the following limits.
   (a) $\lim_{x \to -1} \dfrac{x^2 + 2x + 1}{x^2 - 5}$
   (b) $\lim_{x \to 3^+} \dfrac{x^2 - x - 6}{x^2 - 5x + 6}$
   (c) $\lim_{x \to 3^-} \dfrac{x + 2}{x - 3}$
   (d) $\lim_{z \to 4} \dfrac{4 - z}{2 - \sqrt{z}}$



4. Above is the graph of the function $g(x)$. Find the following limits.
   (a) $\lim_{x \to 3} g(x)$
   (b) $\lim_{x \to 3} (g(x))^2$
   (c) $\lim_{x \to -1} g(x)$
   (d) $\lim_{x \to -1^-} g(x^2)$
   (e) $\lim_{t \to 2} \dfrac{g(t) - \frac{3}{2}}{t - 2}$
   Hint. We have taken limits like this in class. What were we computing?
   (f) $\lim_{t \to -2} \dfrac{g(t) - 1}{t + 2}$
   Hint. See previous hint.