Section 1.8 (continued)
LIMITS
September 21, 2012

Class Work

1. Using the definition of limit on page 52, show that \( f(x) = 2x \) is continuous at \( x = 1 \).

2. Using the definition of limit on page 52, show that \( f(x) = 2x \) is continuous everywhere.
3. Find a value of the constant $k$ such that the limit below exists.

$$\lim_{x \to 1} \frac{x^2 - kx + 4}{x - 1}$$

4. Find a value of the constant $k$ such that the limit below exists.

$$\lim_{x \to \infty} \frac{x^3 - 6}{x^k + 3}$$

Can you find a second such value of $k$?