Quiz # 3 — 09/18/14

Answer all questions in a clear and concise manner. Remember that answers without explanation or that are poorly presented may not receive full credit.

1. (a) State what it means for a function $f(x)$ to be continuous at a point c.

   (b) Consider the function

$$f(x) = \begin{cases} x^2 + 3 & \text{for } x < 1 \\ 10 - x & \text{for } 1 \leq x \leq 2 \\ 6x - x^2 & \text{for } x > 2. \end{cases}$$

   i. Is the function continuous at $x = 1$?

   ii. Is the function continuous at $x = 2$?

2. Use the basic limit laws to evaluate the following limit. Be sure to state which limit law you use in each step.

$$\lim_{x \to 2} \frac{x^2 + 2x + 1}{x + 5}$$