Math 105, Section 052 - Quiz 3 **Name:** _____
Date: 01/25/17

Write legibly and indicate your final answers. No books, notes, etc. are permitted. There are two sides. There will be no partial credit awarded for the extra credit problem.

1. (7 *points*) Let $u(t) = 0.17t - 5.1$ be a function which gives the speed of Noah running towards our class in feet per second after t seconds. A negative speed means that Noah was running away from our classroom.

   (a) Evaluate and interpret $u(0)$.

   (b) Assume that when Noah reached the entrance of the classroom, his speed was 10.2 feet per second. How many minutes did it take Noah to get to class?

   (c) At some point, Noah realized that it's not a good day to skip class and stopped for a moment. When did this happen?

2. (7 *points*) A farm sells milk to a cheese company. The farm charges two dollars per gallon and a shipping fee of 30 dollars. On orders of more than 50 gallons, the price of each gallon above the first 50 gallons is reduced to 1.8 dollars. Let $P(m)$ be the cost (in dollars) of buying m gallons of milk from the farm. Write a piecewise defined formula $P(m)$. Your formula must reflect the practical domain of this function.

$$P(m) = \begin{cases} \_\_\_\_\_ & \_\_\_\_\_ \\ \_\_\_\_\_ & \_\_\_\_\_ \end{cases}$$

3. (Extra Credit: 3 *points*) To each of the following "real"-world situations decide if it really is a function in the way we know and if yes find the domain.

   (a) The distance you have run as a function of time since you started.

   (b) The number of foxes in the national park as a function of the year (from 2000 till now).

   (c) Fifteen students are walking on the Cartesian plane. They carry flags with different numbers from 1 to 15. The number a student is carrying as a function of the $y-$coordinate of the point this student is standing on.