Math 115 - Sample Quiz No. 1

January 30, 2015

Name __________________________

[Prof. Porter’s 11:00 class]

1. The range of the function

   \[ \begin{align*}
   \text{(a)} & \quad [−1, \infty) \\
   \text{(b)} & \quad [2, \infty) \\
   \text{(c)} & \quad \mathbb{R} \\
   \text{(d)} & \quad (−\infty, 2] \\
   \text{(e)} & \quad (−\infty, −1] \\
   \text{(f)} & \quad (−\infty, 0] \cup [2, \infty) \\
   \end{align*} \]

2. A manufacturer of tricycles experiences fixed weekly costs of $2,000 plus a variable cost of $40 per tricycle. He sells his tricycles for $75 each. Let \( x \) = number of tricycles made (= number sold).

   (a) Find the cost function \( C(x) \).
   \[ C(x) = \boxed{\text{__________________________}} \]

   (b) Find the revenue function \( R(x) \).
   \[ R(x) = \boxed{\text{__________________________}} \]

   (c) Find the profit function \( P(x) \).
   \[ P(x) = \boxed{\text{__________________________}} \]

   (d) How many tricycles does the manufacturer have to produce and sell to break even, i.e., when does the profit equal zero? Show your work.

   \[ x = \boxed{\text{__________________________}} \]