Quiz 2

1. Doll Dreams has a fixed cost of $10,000.00 and a production cost of $3.25 per doll made. The dolls sell retail price $29.75.

   (a) Give the cost function: ____________________________

   (b) Give the revenue function: ____________________________

   (c) What is the break-even point? ____________________________

   (d) Is there a profit or loss at 300 dolls? How much? ____________________________

   (e) Is there a profit or loss at 800 dolls? How much? ____________________________

2. For each of the quadratic equations below, follow the outline:
   \[ y = x^2 + 3x - 6 \] \[ 2x^2 + 8x + 9 \]

   1) vertex= ____________________________ 1) vertex= ____________________________

   2) line of symmetry: ____________________________ 2) line of symmetry: ____________________________

   3) 2-points ____________________________ 3) 2-points ____________________________

   4) y-intercept ____________________________ 4) y-intercept ____________________________

   5) x-intercept(s) ____________________________ 5) x-intercept(s) ____________________________

   graph graph
3. If the monthly profit is \( P(x) = -0.04x^2 + 160x - 2000 \), how many should be produced to yield the maximum profit? What is the value of this maximum profit?

4. Solve the Systems:
   
   (a) \[
   \begin{align*}
   3x + 2y & = 8 \\
   9x + 8y & = 26
   \end{align*}
   \]

   (b) \[
   \begin{align*}
   p(x) & = -0.3x^2 + 0.7x + 8.2 \\
   p(x) & = 0.2x^2 - 1.2x - 4
   \end{align*}
   \]

   (c) \[
   \begin{align*}
   p(x) & = -0.01x^2 - .4x + 24 \\
   p(x) & = 0.01x^2 + .2x + 4
   \end{align*}
   \]