|  |  |
| --- | --- |
| Group Quiz 2Dusty Wilson **Math 111** No work = no credit | **Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

**A certain company has fixed costs of $15,000 for its product and variable costs given by dollars per unit, where *x* is the total number of units. The selling price of the product is given by dollars per unit.**

1. **Formulate the functions for total cost, revenue, and profit.**
2. **Algebraically find and interpret the break even points. Hint: You should get nice numbers for your results.**

1. **Algebraically find and interpret the maximum profit.**

**Carefully sketch a graph of  being sure to find and label the axes, vertex, axis of symmetry, *y*-intercept, zeros, domain, and range. Use algebraic methods giving exact answers. You may check with your calculator.**

**Consider  and  which represent demand and supply. Use your calculator and draw a graph of this, determine which is which, and find market equilibrium (label your axes). Now if a $20 tax is placed on the production of each item and passed on to the consumer by the supplier, find and interpret the new equilibrium point using algebraic methods.**