Math 124, 3.3 Linear Function Applications

Find formulas for the Revenue, Cost, and Profit for each example. $\boxed{\text{Profit} = \text{Revenue} - \text{Cost}}$
$\boxed{\text{Revenue} = (\text{number sold})(\text{price per item})}$ $\boxed{\text{Cost} = (\text{fixed costs}) + (\text{variable costs})}$

1.) A company sells CDs for \$12 each. The fixed costs are \$2000, and the variable costs are \$3 per CD. Let x be the number of CDs sold.

2.) A shoe company sells shoes for 35 dollars per pair. The cost to make each x pairs of shoes is $300 + 10x$ dollars.

3.) A bakery determines that when the price of rolls is $25 - x$ dollars, then the number of rolls sold that day is x. It costs \$100 to make 10 rolls and \$200 to make 30 rolls (assume the cost function is linear).

1.) Find the break even point if $R(x) = 12x$ and $C(x) = 2000 + 3x$.

2.) Find the break even point if $R(x) = 35x$ and $C(x) = 300 + 10x$.

3.) Find the equilibrium point if supply is given by $p = \frac{2}{3}q$ and demand is given by $p = 5 - \frac{1}{2}q$.

4.) Find the equilibrium point if supply is given by $p = \frac{2}{5}q$ and demand is given by $p = 4 - q$.