

12. (a) With an initial set-up cost of \$3300 and a production cost of \$4.50 the function is: $C(x) = 3300 + 4.50x$
- (b) With a selling price of \$10.50 the revenue function is: $R(x) = 10.50x$
- (c) $P(x) = R(x) - C(x) \Rightarrow P(x) = 10.50x - (3300 + 4.50x) \Rightarrow P(x) = 6x - 3300$
- (d) To make a profit $P(x) > 0$, therefore $6x - 3300 > 0 \Rightarrow 6x > 3300 \Rightarrow x > 550$
Tyler needs to sell 551 before he earns a profit.
- (e) Graph $y_1 = 6x - 3300$, See Figure 12. The first integer x -value for which $P(x) > 0$ is 551