10. $for\ y = \sqrt{x+3}$

a. find dy $= 4.99$

b. find $dy\ when\ x = 2\ and\ dx = .01$

$dy = 4.99$

11. A stereo manufacturer determines that in order to sell x units of a new stereo, the price per unit, in dollars, must be $p(x) = 12500 - 2x$. The manufacturer also determines that the total cost of producing x units is given by $C(x) = 4500 + 3x$

a) Find the total revenue $R(x)$.

b) Find the total profit $P(x)$.

c) How many units must the company produce and sell in order to maximize profit?

d) What is the maximum profit?

e) What price per unit must be charged in order to make this maximum profit?

12. Given $C(x) = 32x^2 + 17{,}000$ and $R(x) = x^3 - 6x^2 + 20x + 10$ find each of the following:

a) Total profit, $P(x)$. $172x + 17,8000$

b)

$C(x) = 97000$ b) Total cost, revenue, and profit from the production and sale of 50 units of the product.

$R(x) = 12501o$ c) The marginal cost, revenue, and profit when 50 units are produced and sold.

$P(x) = 178600$

13. For the demand function$q = D(p) = 471 - p$, find the following.

a) The elasticity function.

b) Find the elasticity at p =112, stating whether the demand is elastic, inelastic or has unit elasticity

c) Find value(s) of p for which total revenue is a maximum (assume that p is in dollars)