



is the quantity that will maximize profit = 60.

b) Find the selling price at this optimal quantity?

$$\begin{aligned}
 p &= 600 - \frac{1}{2}x \\
 \rightarrow p &= 600 - \frac{1}{2}(60) \\
 &= 600 - 30 \\
 &= \underline{\underline{570}}
 \end{aligned}$$

c) What is the max. profit?

$$\begin{aligned}
 P(x) &= 300x - 2.5x^2 \\
 \rightarrow P(60) &= 300(60) - 2.5(60)^2 \\
 &= \underline{\underline{9000}}
 \end{aligned}$$

41 An industry with a monopoly on a product has its average weekly costs, given by:-

$$\bar{C} = \frac{10000}{x} + 62 - 0.03x + 0.00001x^2.$$

The weekly demand is given by  $p = 120 - 0.015x$ . Find the price industry should set to obtain max. profit. Find the max. profit.

$$\rightarrow P(x) = R(x) - C(x); \quad R(x) = p \cdot x = 120x - 0.015x^2$$

$$C(x) = \bar{C} \cdot x = 10000 + 60x - 0.03x^2 + 0.00001x^3$$