

$$\begin{aligned}
 C(x) &= \int (6x + 60) dx \\
 &= \frac{6x^2}{2} + 60x + C \\
 &= 3x^2 + 60x + C
 \end{aligned}$$

to find C : $C(10) = 1000$ ~~المسألة~~

$$\begin{aligned}
 1000 &= 3(10)^2 + 60(10) + C \\
 \rightarrow 1000 &= \underset{-900}{900} + C \rightarrow \boxed{C = 100}
 \end{aligned}$$

So $\boxed{C(x) = 3x^2 + 60x + 100}$

$$\begin{aligned}
 \therefore P(x) &= R(x) - C(x) \\
 &= \underline{180x} - \underline{x^2} - \underline{3x^2} - \underline{60x} - 100 \\
 &= 120x - 4x^2 - 100
 \end{aligned}$$

c) Find the profit or loss at the optimal level of production.

$$\begin{aligned}
 P(15) &= 120(15) - 4(15)^2 - 100 \\
 &= \underline{\underline{800}}
 \end{aligned}$$