# ICSE 2018 Q21 a

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## 0.1. Solution:

$$c(x) = \frac{x^2}{100} + 100x + 40$$

$$\frac{p(x)}{x} = 200 - \frac{x}{400}$$

$$Profit = p(x) - c(c)$$

For maximum profit

$$\frac{dProfit}{dx} = 0$$

$$\implies 100 - \frac{x}{40} = 0$$

$$\implies x = 4000$$

$$Price \; per \; unit = \frac{c(x)}{x} = 190$$

$$Total \; profit = p(x) = 199960$$