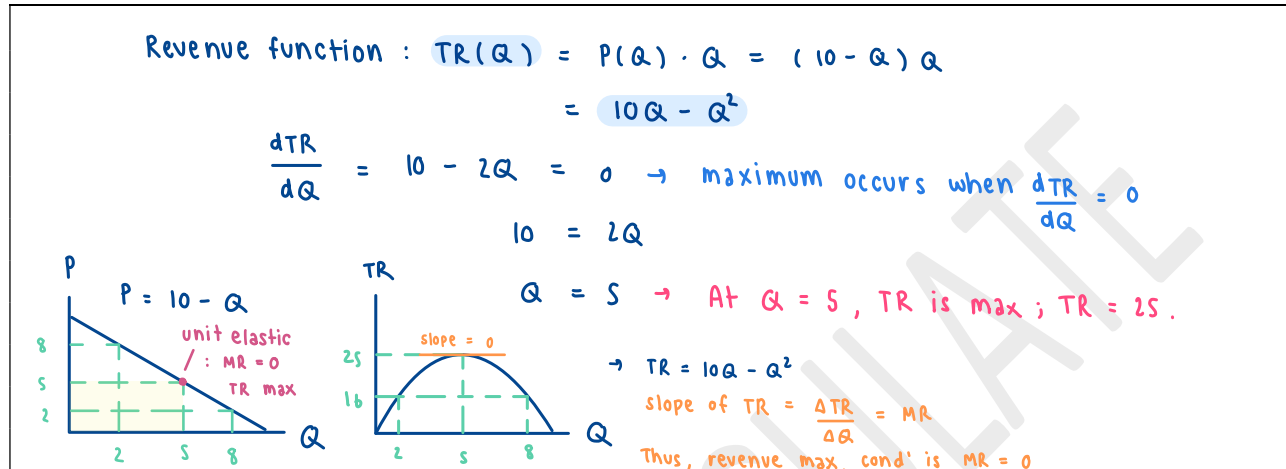


Example 2.I: A monopolist firm faces the market demand given by $P = 10 - Q$. Consider the following questions if the cost function $C(Q) = 4Q$. if AC is given $\rightarrow TC = AC \cdot Q$

- What is the revenue-maximizing level of output?



- What is the break-even output? : profit = 0

$$TR = TC$$

$$10Q - Q^2 = 4Q$$

$$6Q = Q^2$$

$$\therefore Q = 6$$

- What is the profit-maximizing level of output?

$\textcircled{1} \quad MC = MR$ $\frac{dTC}{dQ} = \frac{dTR}{dQ}$ $4 = 10 - 2Q$ $Q = 3 \quad \#$	$\textcircled{2} \quad \pi = TR - TC$ $\pi = 10Q - Q^2 - 4Q$ $\pi = 6Q - Q^2$ $\frac{\partial \pi}{\partial Q} = 6 - 2Q = 0$ $Q = 3 \quad \#$
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