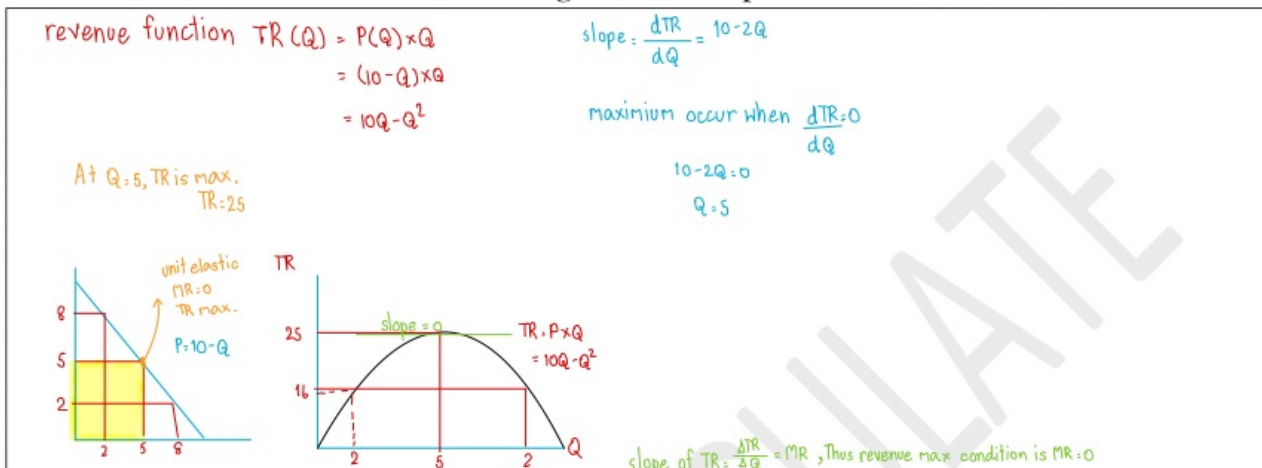


Example 2.I: A monopolist firm faces the market demand given by $P = 10 - Q$. Consider the following questions if the cost function $C(Q) = 4Q$.

- What is the revenue-maximizing level of output?



- What is the break-even output?

$TR = TC$
 $P(Q) \times Q = 4Q$
 $(10 - Q) \times Q = 4Q$
 $10Q - Q^2 = 4Q$
 $Q^2 = 6Q$
 $Q = 6$

$TR = 0 \rightarrow TR = TC$

- What is the profit-maximizing level of output?

$\pi = TR - TC$
 $= [(10 - Q) \times Q] - 4Q$
 $= 10Q - Q^2 - 4Q$
 $= 6Q - Q^2$

$\frac{d\pi}{dQ} = 0$
 $6 - 2Q = 0$
 $Q = 3$