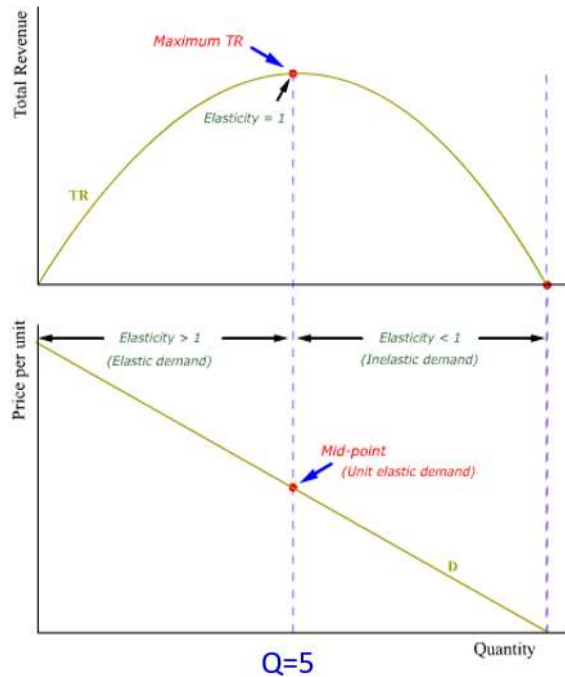


Quadratic function: revenue function/break even analysis



$$\left| \frac{\% \Delta Q}{\% \Delta P} \right| : \begin{array}{ll} > 1 ; & \text{elastic} \\ = 1 ; & \text{unit elastic} \\ < 1 ; & \text{inelastic} \end{array}$$

Revenue maximizing output:
unit elasticity

Profit-maximizing output:
under region with elastic demand

48

Exercise 2B. Consider a function that relates tax revenues R , in billions of dollars, to the average tax rate t such that $R = 350t - 500t^2$.

- What tax rate(s) is consistent with raising tax revenues equal to \$60 billion?
- What tax rate(s) is consistent with raising tax revenues equal to \$61.25 billion?
- What tax rate is consistent with the maximum tax revenue?

$$a) \quad 60 = 350t - 500t^2 \\ t = 0.3$$

$$b) \quad 60.25 = 350t - 500t^2 \\ t = 0.3052$$

$$c) \quad R = -500t^2 + 350t \\ \frac{-b}{2a} = \frac{-350}{2(-500)} = \frac{7}{20} \\ R\left(\frac{7}{20}\right) = -500\left(\frac{7}{20}\right)^2 + 350\left(\frac{7}{20}\right) \\ = \frac{245}{4} \\ = 61.25$$