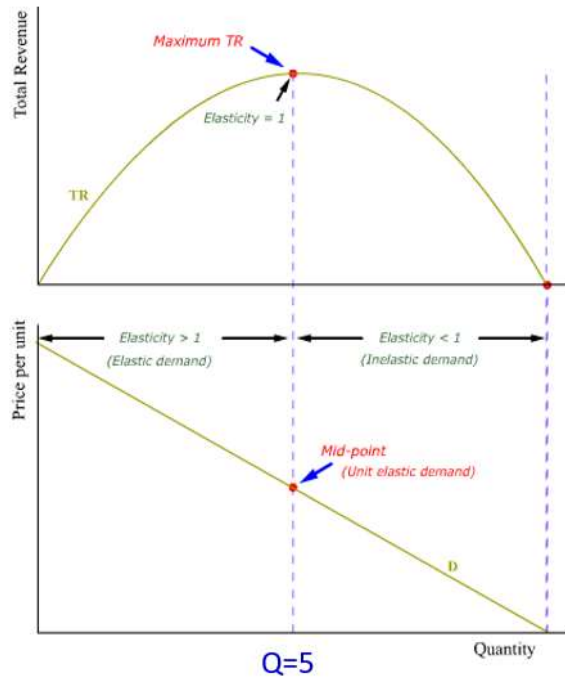


Quadratic function: revenue function/break even analysis



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

Revenue maximizing output:
unit elasticity

Profit-maximizing output:
under region with elastic demand

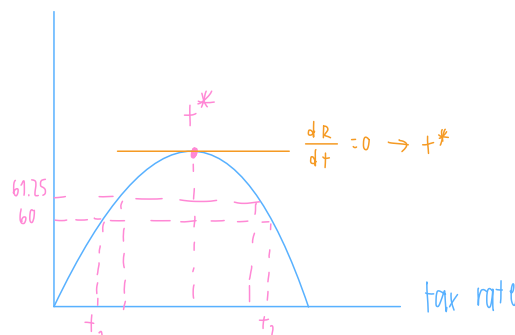
48

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

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

Laffer curve

tax rev.



$$(a) 60 = 350t - 500t^2$$

$$500t^2 - 350t + 60 = 0$$

$$10(50t^2 - 35t + 6) = 0$$

$$(t - 0.3)(t - 0.4) = 0$$

$$t = 0.3, 0.4$$

$$(b) 61.25 = 350t - 500t^2$$

$$500t^2 - 350t + 61.25 = 0$$

$$t = 0.35$$

$$(c) \frac{dR}{dt} = 0$$

$$R = 350t - 500t^2$$

$$\frac{dR}{dt} = 350 - 1000t$$

$$0 = 350 - 1000t$$

$$-350 = -1000t$$

$$t = 0.35$$

HW

