

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? $t_1 \text{ \& } t_2$

(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? t^* find vertex

a.) Elastic : > 1

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

$$(0.3, 0.4) = t$$

$$3\%, 4\% = t$$

b.)

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

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

$$0.35 = t$$

$$35\% = t$$

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

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

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

$$0 = 350 - 1000t$$

$$-350 = -1000t$$

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

$$0.350 = t$$

$$35\% = t$$