



# B.E. International Program

Faculty of Economics, Thammasat University



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EE 320 Introductory Mathematical Economics (Section 046402)

Semester 1/2013

## Quiz 1 (b)

Consider the following demand and supply functions

$$Q_D = 16 - P \quad \text{and} \quad Q_S = 4 + 3P$$

a) (4 points) Find the equilibrium price and equilibrium quantity.

Answer:  $P_0^* = 3$ ;  $Q_0^* = 13$

b) (4 points) Suppose a tax of \$0.40 per unit is imposed on the consumer. How will this tax affect the equilibrium price and quantity?

Answer:

After-tax equilibrium,  $16 - (P + 0.4) = 4 + 3P$ , where  $P = P_s$

$$\Rightarrow P_s^* = 2.9$$

$$\Rightarrow P_d^* = P_s^* + 0.4 = 3.3$$

$$\Rightarrow Q^* = 12.7$$

c) (2 points) What are the tax burden per unit on the consumer and the tax burden per unit on the producer?

Answer:

Tax burden per unit on consumer:  $P_d^* - P_s^* = \$0.4$

Tax burden per unit on producer:  $P_s^* - P_0^* = \$0.1$