B.E. International Program

Faculty of Economics, Thammasat University

EE 320 Introductory Mathematical Economics

Semester 1/2015

Quiz 1 (a) - Answers

1. (*6 points total*) Consider the following demand and supply functions

$$Q_D = 77 - 2P \qquad \text{and} \qquad Q_s = 50 + P$$

Suppose a tax of \$3 per unit is imposed on the consumer.

a. (*3 points*) Determine the after-tax equilibrium price paid by consumers, the after-tax equilibrium price received by producers, and the after-tax equilibrium quantity.

Ans. $P_d^* = 10; P_s^* = 7; Q_T^* = 57$

b. (*3 points*) Calculate the tax burden per unit on the consumer and the tax burden per unit on the producer. [Note: You need to first determine the before-tax equilibrium price].

Ans. $P_0^* = 9$

Per-unit tax burden on consumer = \$1

Per-unit tax burden on producer = \$2

2. (*4 points total*) Let the national-income model be:

$$Y = C + I_0 + G_0 + X_0 - M$$

$$C = C_0 + bY_d, \quad (C_0 > 0, 0 < b < 1)$$

$$Y_d = Y - T, \quad \text{where } T \text{ is a constant}$$

$$M = M_0 + mY_d, \quad (M_0 > 0, 0 < m < 1)$$

a. (*3 points*) Given that $C_0 = 800$, $b = 0.8$, $I_0 = 700$, $G_0 = 450$, $T = 200$, $X_0 = 350$, $M_0 = 200$, *and* $m = 0.2$, find the equilibrium national income.

Ans. Y* = 4950

b. (*1 points*) Calculate the consumption at the equilibrium level.

Ans. C* = 4600