Chapter1 Static Equilibrium Analysis in Economics

1. From the following functions, write these functions into the implicit function
   a) $y=3x+12$
   b) $y=-x^2+5x-2$
   c) $y=\frac{23}{x}$

2. From the following functions, what types of function it is.
   a) $Y= 14x+2$
   b) $Y= x^2+2x+2$
   c) $Y=2^x$
   d) $Y=\log_3 x$
   e) $Y=\frac{34}{x}$

3. Let the demand and supply functions are as followed;
   $Q_d=51-3P$ and $Q_s=6P-30$
   Find P*, Q* and show on the graph

4. Classify which equation is demand and supply functions and find the equilibrium of the market.
   $Q=30-P$ and $Q=5P-6$

5. Find the equilibrium solution for each of the following models;
   a. $Q_d=3-P^2$ and $Q_s=6P-4$
   b. $Q_d=8-P^2$ and $Q_s=P^2-2$
   c. $P+Q^2+3Q-20=0$ and $p-3Q^2+10Q-5=0$

6. If the demand and supply functions of a two-commodity market model are as followed;
   $Q_{d1}=18-3P_1+P_2$ $Q_{d2}=12+P_1-2P_2$
   $Q_{s1}=-2+4P_1$ $Q_{s2}=-2+3P_2$
   Find the equilibrium price of the market

7. Given the market demand and supply functions as $3P+Q=51$ and $6P-Q=30$, if the government imposes an excise tax of 2baht per unit.
   Find a) Market equilibrium before taxation
   b) Market equilibrium after taxation

c) Taxes paid by buyers and sellers
d) Government tax revenue

8. Given

$Y=C+I+G$
$C=a+bY_d$
$Y_d=Y-T$
$I=I_0$
$G=G_0$

Y is national income
C is consumption expenditure
I is investment expenditure
G is government expenditure
R is interest rate of investment
$(a, b, d, e, G_0 > 0)$

a) Find endogenous variables and exogenous variables in the model above
b) Give the economic meaning of the parameter b
c) Find the equilibrium national income

9. Find Y* and C* from the following;

$Y=C+I_0+G_0$
$C=25+6Y^{1/2}$
$I_0=16$
$G_0=14$

10. Let the national-income model be

$C=150+0.75Y_d$
$Y_d=Y-T$
$T=10+0.2Y$
$I=1160-30R$
$G=935$

Find IS curve

11. Given a goods and services market model, the demand and supply of gods are given as

$Q_d^x=a - bP_x+P_y$

$Q_s^x = -c+dP_x$

$P_y=k$

Determine which variables in this model are parameters, endogenous and exogenous variables

12. Let the money market model be

    $M_d=1200+0.5Y-50R$ and $M_s=200$

    Find LM curve

13. Given the money market model be

    $M_d=875+0.25Y- 25R$ and $M_s=2000$

    Given the national-income model be

    $C= 250+0.5Y_d$

    $Y_d=Y-T$

    $T=20$

    $I=1000-20R$

    $G=1200$

    $X=3160$

    $M=100+0.3Y$

    Find the equilibrium of this economy