Econ 3010. KUA 5

Assume that the following equations describe the economy.

(1) \[ Y = C + I + G + NX \]
(2) \[ C = 18 + 0.5(Y - T) \]
(3) \[ I = 0.3Y - 100i \]
(4) \[ T = 12 \]
(5) \[ G = 15 \]
(6) \[ NX = -2 \text{ (it's a trade deficit)} \]
(7) \[ M / P = 0.5Y - 200i \]
(8) \[ M / P = 40 \]

(a) Substitute (2)-(6) into (1) and solve for GDP (Y). The answer is not a number but depends on the interest rate (i). This is your IS equation.

(b) Substitute (8) into (7) and solve for the interest rate (i). The answer is not a number but depends on GDP (Y). This is your LM equation.

(c) Plug the LM equation for (i) into the IS equation and solve for Y. Then plug the value for Y back into the LM equation to find i. You now have equilibrium \((Y^*, i^*)\) in IS-LM equilibrium.

(d) Sketch the IS and LM curves in a diagram with Y on the horizontal axis and i on the vertical axis. Show the IS and LM equations next to their curve and mark \(Y^*\) and \(i^*\).

(e) Find equilibrium investment in America by plugging into (3). Similarly, find consumption \(C^*\) using (2). Finally, check that your math is right: is \(Y = C + I + G + NX\) and \(MP = 0.4Y - 200i\)?