S11 - IS-LM-BP problem

Problem 1

Consider the case of an open economy described by the IS-LM-BP model, for which we know the following data: the marginal propensity to consume c=0.7; the tax rate t= 30%; b=250; k=0,2; h=2500; autonomous consumption C_0=300 bil.€; autonomous investments I_0=420 bil.€; G= 900 bil.€; autonomous taxes T_0=100 bil.€; real money supply= 500 bil.€ and transfers to households are zero. Also, the net export equation is known: $NX = NX_0 - m \cdot Y$, where m = 0.1 and NX_0 = 530 bil.€.

Determine:

a) The IS, LM and BP equations both analytically and numerically.
b) The equilibrium point (Y^*, r^*), as well as the budgetary deficit (BD), C, I, T and NX.
c) The budgetary policy multiplier, Γ_{BP}, and the monetary policy multiplier, Γ_{PM}.
d) The effects of the following policies on the equilibrium point (both numerically and graphically):
   - an increase of 100 bil. € in government expenditures;
   - a decrease of 100 bil. € in money supply;
   - a reduction of 5 p.p. in the tax rate.