S9 - IS-LM problem

Problem 1

Consider the case of an economy described by the IS-LM model, for which we know the following data: the propensity of consumption c=0,9; the tax rate t= 1/3 (33,3%); b=1000; k=1; h= 10000; autonomous consumption C_0=90 mil.€; autonomous investments I_0=200 mil.€; G= 710 mil.€; autonomous taxes T_0=0 mil.€; real money supply= 500 mil.€; transfers to households are zero and the trade balance is balanced (NX = 0).

Determine:

a) The IS and LM equations both analytically and numerically.
b) The equilibrium point (Y^*, r^*), as well as the budgetary deficit (BD_0).
c) The budgetary policy Γ_{BP} and the monetary policy Γ_{MP}
d) The change in the money supply ($\frac{\Delta M}{p} = ?$) that could lead to a balanced budgetary deficit (BD_1=0).
e) The effects of a budgetary policy ($\Delta G = -50$ mil. €) upon the initial equilibrium point (Y^*, r^*).
f) The new level of the tax rate t_1 that could lead to an increase of the GDP by 100 mil.€