Exercise 1: Keynesian Cross

We consider an economy which produces Y. The economy is populated with keynesian agents. They consume in total $C(y) = c_0 + c_1 y$ when their income is y where c_0 and c_1 are positive constants (and $c_1 < 1$). Total investment by firms is constant equal to $I = i_0$ Government spending amounts to $G = g_0$.

Total expenditures are given by the formula $C + I + G$.

1. Computing marginal propensity to consume of consumers
   - Assume consumers initially earn Y. What is their consumption $C(Y)$?
   - Now their consumption increases to ΔY. What is their new consumption $C(Y + \Delta Y)$?
   - What is their increase in consumption $\Delta C = C(Y + \Delta Y) - C(Y)$
   - What is their marginal propensity to consume?
2. Keynesian Cross (a.k.a. 45 degrees line)
   - Write down the equilibrium condition on the goods and services market.
   - Solve for $\overline{Y}$ such that this equilibrium condition is met.
   - Graphical representation
3. Fiscal Multiplier
   - Assume government spending go from g_0 to $g_0 + \Delta G$. ΔG is financed through debt which does not need to be repaid in the short run.
   - What is the new condition characterizing the equilibrium.
   - Write the new production as $Y + \Delta Y$ and compute ΔY
   - What is the fiscal multiplier?
   - Graphical representation.
   - Can you obtain the same result in a different way?
4. Spending and taxes.
   - Assume the government finances ΔG by raising an equivalent income tax on the consumers ΔT.
   - What is the new consumption of consumers?
   - What is the new equilibrium?
   - What is the new fiscal multiplier?