Exercise 3
Keynesian Cross and the Multiplier

1. The Keynesian consumption function assumes that $0 < MPC < 1$; what is the basis for such assumption?

$C = a + bY$

2. Assume a CLOSED economy with NO government. Let the autonomous consumption be 200 and MPS be 0.3. Draw and write equations for both saving and consumption functions.

MPS + MPC = 1 / MPC = 0.7

3. Let the saving function be $S = -150 + 0.35Y$. Find and draw the consumption function.
4. How do the followings affect the AE graph (i.e. explain how the graph changes) and the equilibrium output?

- All firm managers decide to buy fewer machines.
- The government decides to build more roads.
- The citizens decide to save more at all income levels.
- The citizens decide to save larger proportion of income.
- The government decides to raise tax.

5. In the Keynesian Cross Model, suppose that aggregate output is greater than aggregate expenditure. Explain the adjustment process towards the equilibrium.
6. Let $C = 60 + 0.6Y$ and $I = 20$. Find the equilibrium output with the saving/investment approach.
7. Let $S = -60 + 0.4Y$ and $I = 20$. Find the equilibrium output with the standard approach. Now, suppose I increases by 20. Find the new equilibrium and the investment multiplier.
8. With the multiplier effect, an injection of money (for example, investment) can lead to a greater proportional increase in output. Explain how this can happen.
9. How is the investment multiplier related to MPC? Explain the intuition behind such relationship. (Hint: Question 9)
10. What is the Paradox of Thrift? Explain it with diagram.

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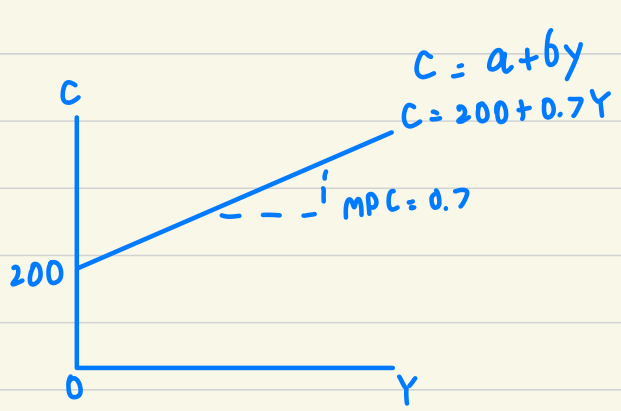
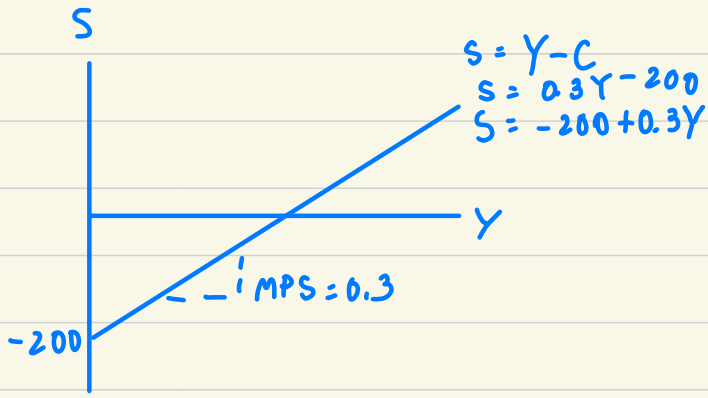
1) Real consumption is a function of real income, and as income rise, consumption will also rise but not necessarily at the same rate.

2)





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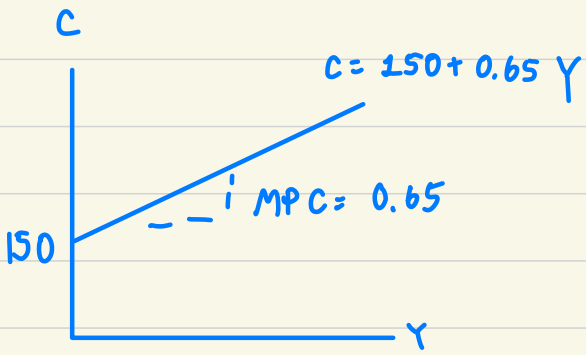

4) - Investment ↓ → AE graph shift down → equilibrium output decrease
- Government spending ↑ → AE graph shift up → equilibrium output increase
- Autonomous saving ↑ → AE graph shift down → equilibrium output decrease
- MPS increase → AE graph shift down → equilibrium output decrease.
- Tax increase → AE graph shift down → equilibrium output decrease

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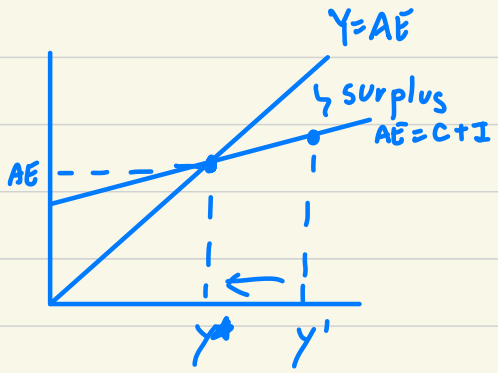
5)



$Y > C+I$

Business need to cut back to production to meet the quilibrium.

6) Find S

$Y = C+S$

$S = Y-C$

$S = Y - 60 + 0.6Y$

$S = 0.4Y - 60$

$S = I$

$0.4Y - 60 = 20$

$0.4Y = 80$

$Y^* = 200$ #

7) $S = I$

$0.4Y - 60 = 20$

$0.4Y = 80$

$Y^* = 200$

if Y increas by 20

$0.4Y - 60 = 40$

$0.4Y = 100$

New $Y^* = 250$

Investment multiplier $= \frac{\Delta Y^*}{\Delta I^*}$

$= \frac{50}{20}$

$= 2.5$

∴ when I increase by 1, output will increase by 25 units.

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8) When money injected, firm have more money to oparate their busines, more machine, hiring more labor, as one man's spending is another man's income.

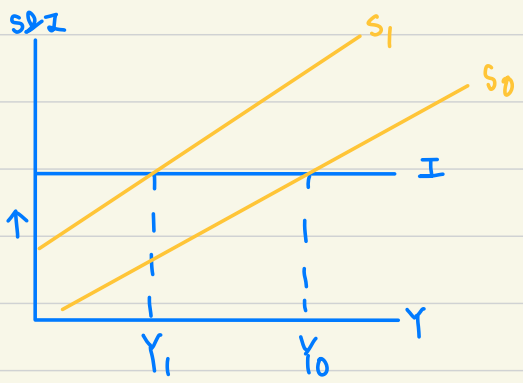
9)

$$\text{Investment multiplier} = \frac{1}{1 - MPC}$$

when MPC increase, it give higher investment multiplier.

When people spend a lot of money, other will also recive a lot of money as their income. After that they will also spend a lot and the othere will receive a lot too, so the economy grow.

10)



Paradox of thrift states that increasing in autonomous saving leads to decrease in aggregate demand.
Therefore, aggregate output decrease