Economics 102 Name _____
Summer 2016
Quiz #3 with Answers

Show your work and present your work clearly and neatly!

1. Consider the aggregate production function depicted in class lecture to answer this set of questions.

a. (1.5 points) The labor market is in equilibrium and the economy is currently producing a level of real GDP we will call Y1. Suppose that the amount of capital in the economy is decreased due to a ferocious hurricane. Given this information and holding everything else constant, what do you predict will happen to the following?

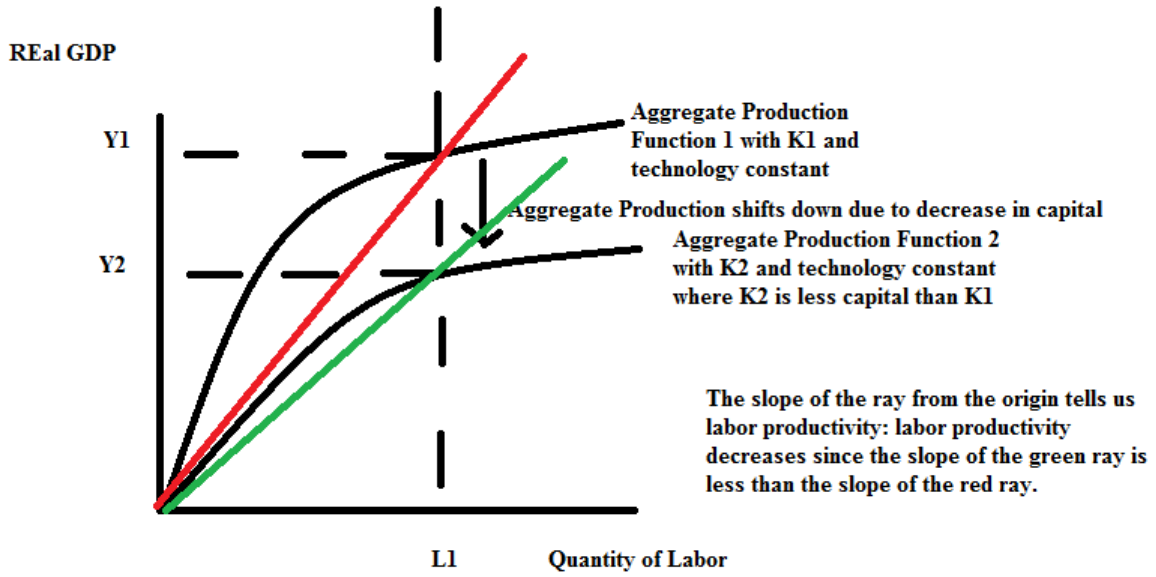
i. Real GDP will _____

ii. Labor productivity will _____

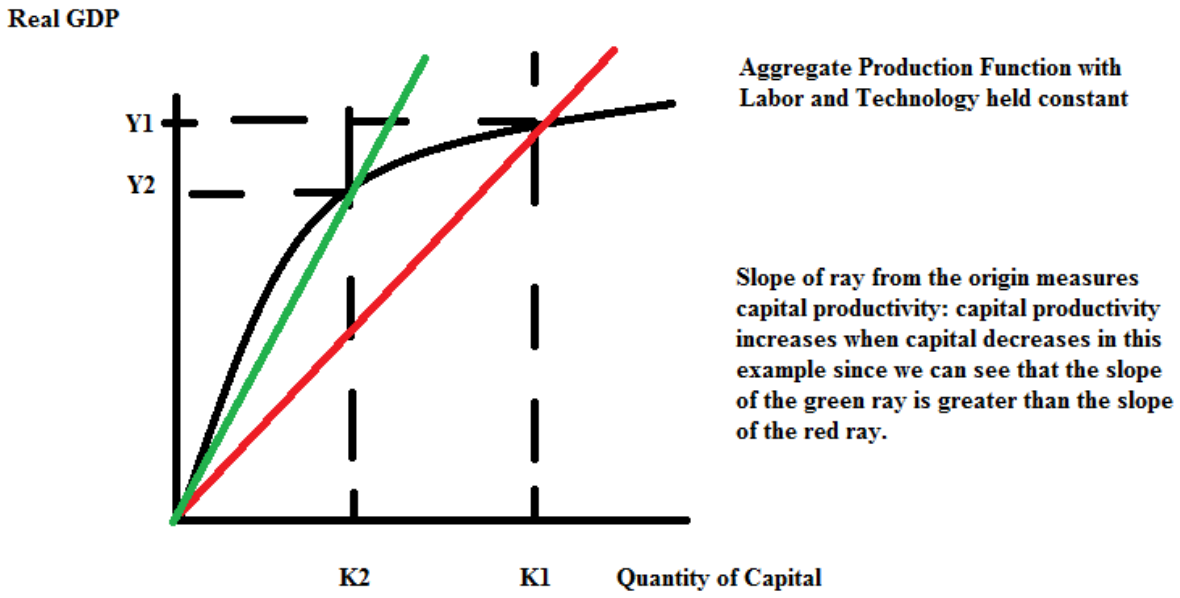
iii. Capital productivity will _____

Answer:

A decrease in capital will shift the aggregate production function down and for a given amount of labor this implies that real GDP will decrease. Labor productivity will also fall (labor is relatively abundant while capital becomes more scarce). See the diagram below:



Capital productivity will rise (less capital used more intensively by the relatively abundant labor). See the diagram below:



i. Real GDP will _____decrease_____

ii. Labor productivity will _____decrease_____

iii. Capital productivity will _____increase_____

b. (1.5 points) The labor market is in equilibrium and the economy is currently producing a level of real GDP we will call Y1. Suppose that the amount of technology in the economy increases at the same time that the amount of labor in the economy increases. Given this information and holding everything else constant, what do you predict will happen to the following?

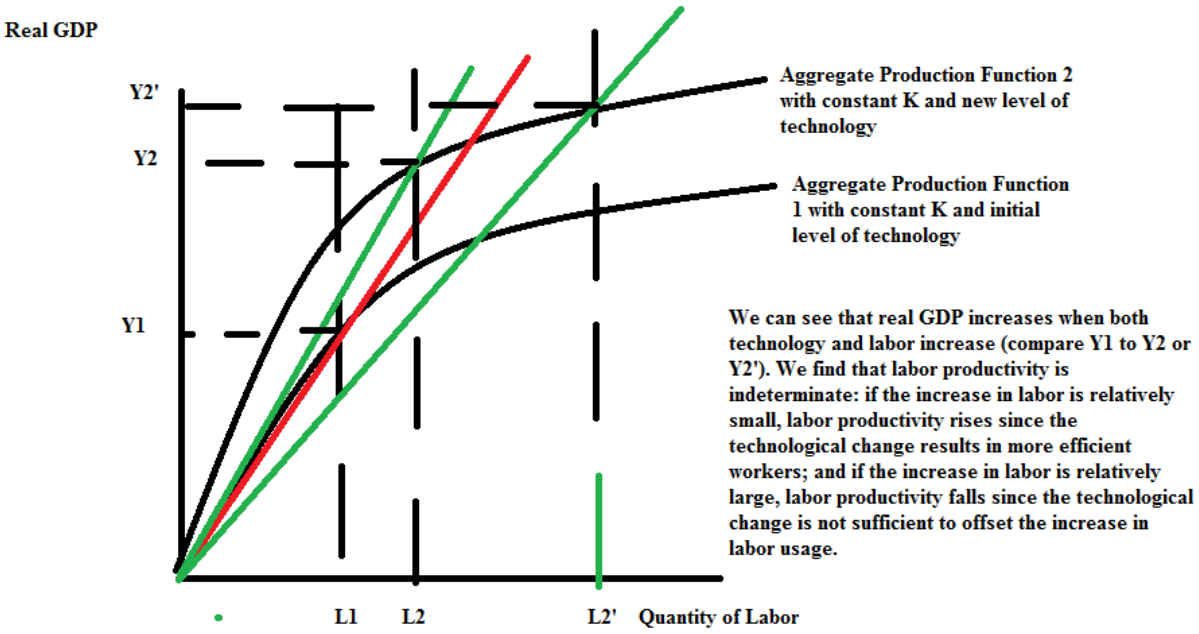
i. Real GDP will _____

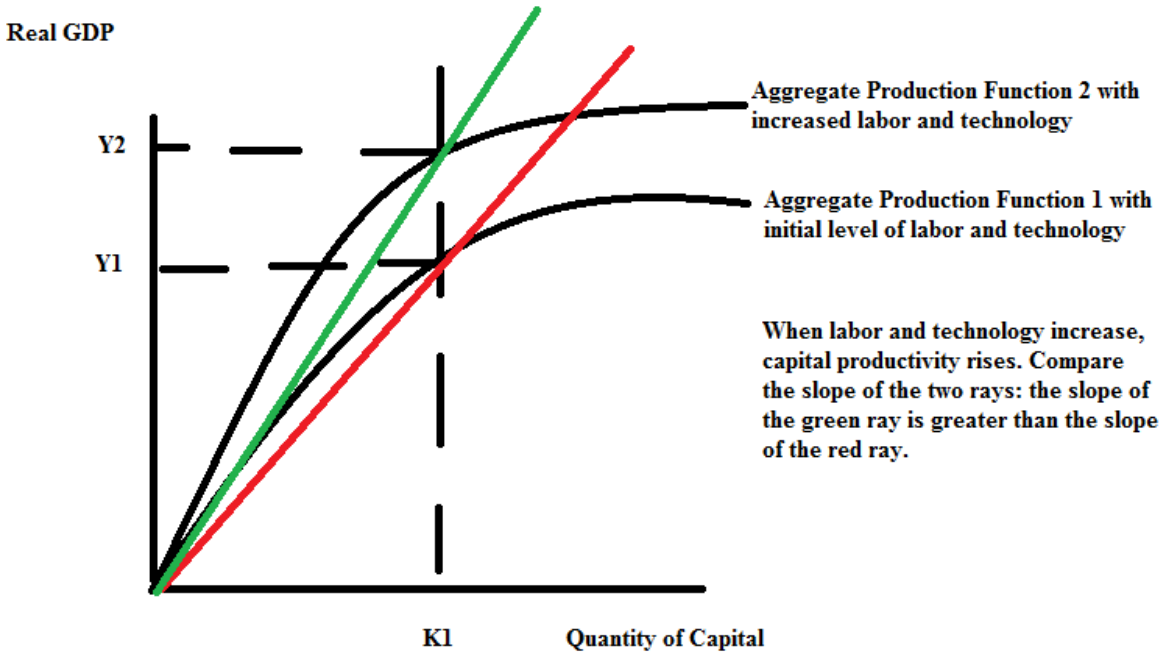
ii. Labor productivity will _____

iii. Capital productivity will _____

Answer:

Real GDP will increase, labor productivity may increase, remain the same, or decrease, and capital productivity will increase. Here are the graphs:





i. Real GDP will _____increase_____

ii. Labor productivity will _____increase, decrease, or remain the same_____

iii. Capital productivity will _____increase_____

2. Consider the Keynesian short-run model discussed in class for this question. You are given the following information:

C = a + b[Y – (T – TR)] where C is consumption spending, Y is real GDP, (T – TR) is net taxes, "a" is autonomous consumption and "b" is the marginal propensity to consume

(T – TR) = net taxes = Taxes – Transfers = $40

G = government spending = $50

I = investment spending = $20

(X – IM) = net foreign sector spending = Exports – Imports = $10

You are also given the following data:

Y or Real GDP	(T – TR) or Net Taxes	C or Consumption Spending	Sp or Private Saving
$100	$40	$116	
$200	$40		
$300	$40		
$400	$40	$296	

a. (1 point) Given the above information, find the value of autonomous consumption, the value of the marginal propensity to consume, and the equation for the consumption function as a function of disposable income, [Y – (Y – TR)]. Determine whether this economy is operating with a government deficit, a balanced budget, or a government surplus.

i. autonomous consumption is equal to _____
ii. the marginal propensity to consume is equal to _____
iii. the consumption function can be written as _____
iv. this economy is operating with a _____

Answer:
From the table we can calculate the MPC as the (change in consumption)/(change in disposable income) = (296 – 116)/(360 – 60) = 180/300 = .6. We can then use one of the known points (disposable income, consumption) = (60, 116) or (360, 296) and the general equation C = a + b[Y – (T – TR)] to find the value of autonomous consumption, "a". Thus,
C = a + b[Y – (T – TR)]
116 = a + .6(60)
116 – 36 = a
80 = a
C = 80 + .6[Y – (T – TR)] is the consumption function with respect to disposable income.

C = 56 + .6Y is the consumption function with respect to real GDP (here we just substitute 40 for (T – TR) and reduce the equation to its simplest form).

Since government spending exceeds net taxes this tells us that this economy is operating with a budget deficit.

i. autonomous consumption is equal to _____$80_____
ii. the marginal propensity to consume is equal to ____.6_____
iii. the consumption function can be written as _C = 80 + .6[Y – (T – TR)]___
iv. this economy is operating with a ___budget deficit___

b. (1 point) Using the above information find the equilibrium level of real GDP for this economy. Show your work.

Answer:
Ye = C + I + G + (X – IM)
Ye = 80 + .6[Ye – (T – TR)] + I + G + (X – IM)
Ye = 80 + .6(Ye – 40) + 20 + 50 + 10
.4Ye = 136
Ye = $340

c. (1 point) Fill in all the missing values in the table.

Answer:

If you made this far you know that C = 80 + .6[Y – (T – TR)] = 56 + .6Y. Use this equation to fill in the missing C values.

So, C = 56 + .6(200) = $176

C = 56 + .6(300) = $236

Recall that income can be spent, saved, or used to pay taxes. Thus,

Y = C + Sp + (T – TR)

Use this equation to find the Sp values. Thus,

100 = 116 + 40 + Sp or Sp = -$56

200 = 176 + 40 + Sp or Sp = -$16

300 = 236 + 40 + Sp or Sp = $24

400 = 296 + 40 + Sp or Sp = $64

Y or Real GDP	(T – TR) or Net Taxes	C or Consumption Spending	Sp or Private Saving
$100	$40	$116	-$56
$200	$40	$176	-$16
$300	$40	$236	$24
$400	$40	$296	$64

3. Consider the market for loanable funds as discussed in class to answer this set of questions.

a. (2 points) The loanable funds market is initially in equilibrium and the government is operating with a balanced budget. The government decides to increase its government spending while maintaining a constant level of taxes. Holding everything else constant, what do you predict will happen to the following?

i. The equilibrium interest rate will _____

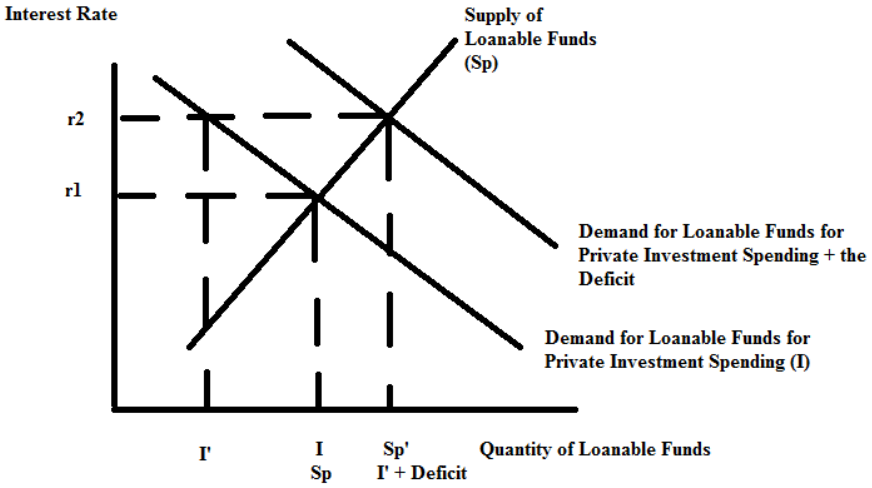
ii. The equilibrium level of private investment spending will _____

iii. The equilibrium level of private saving will _____

iv. The equilibrium level of consumption spending will _____

Answer:

If the government increases its government spending while maintaining a constant level of taxes this will result in the government running a budget deficit. You can model this as either a shift to the right of the demand for loanable funds curve (this I think is easier) or a shift to the left of the supply of loanable funds curve. The equilibrium interest rate will increase, the equilibrium level of private investment spending will decrease, the equilibrium level of private saving will increase, and the equilibrium level of consumption spending will decrease. To see what happens to consumption spending recall that real GDP = Consumption + Private Saving + Net Taxes. In the loanable funds market we assume that real GDP is unchanged and at full employment. So, if net taxes do not change and real GDP does not change, then an increase in private saving is only possible if consumption spending decreases. Here's a graph to illustrate everything but the effect on consumption spending.



i. The equilibrium interest rate will _____increase_____

ii. The equilibrium level of private investment spending will _____decrease_____

iii. The equilibrium level of private saving will _____increase_____

iv. The equilibrium level of consumption spending will _____decrease_____

b. (2 points) The loanable funds market is initially in equilibrium and the government is operating with a budget surplus. Suppose that the government reduces its budget surplus (it is still a surplus, just smaller) at the same time that there is an increase in the demand for private investment spending at every interest rate. Holding everything else constant, what do you predict will happen to the following?

i. The equilibrium interest rate will _____

ii. The equilibrium level of private investment spending will _____

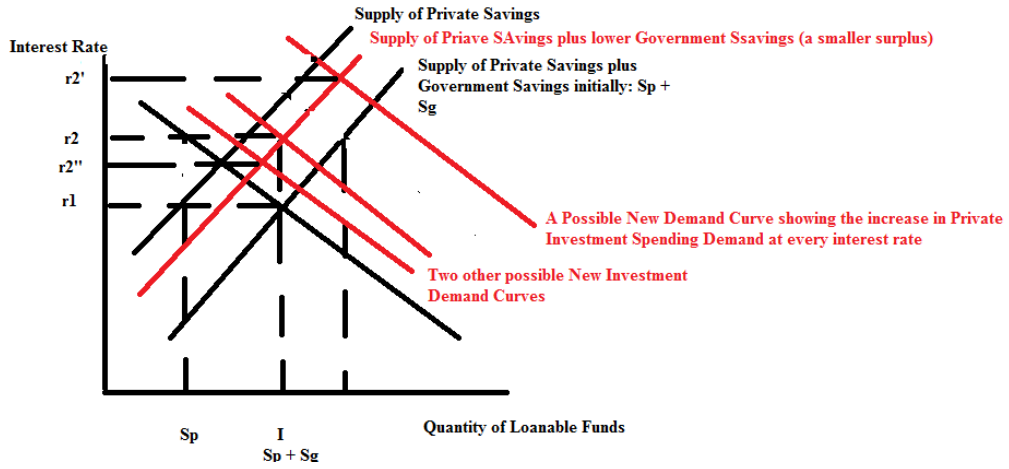
iii. The equilibrium level of private saving will _____

iv. The equilibrium level of consumption spending will _____

Answer:

A reduction in the budget surplus will cause the supply of loanable funds curve to shift to the left while an increase in the demand for private investment spending at every interest rate will cause the demand for loanable funds curve to shift to the right. We have two shifts and no information about the relative size of the shift. So, we should expect indeterminancy here! So, what can we predict? Interest rates will increase, and when interest rates increase we will see an increase in

private savings. This will necessitate a decrease in consumption spending. But, what about private investment spending? Private investment spending may increase, decrease, or stay at its initial level. Private investment spending is indeterminate. Here's a graph to illustrate this idea:



i. The equilibrium interest rate will _____increase_____

ii. The equilibrium level of private investment spending will _____be indeterminate____

iii. The equilibrium level of private saving will _____increase_____

iv. The equilibrium level of consumption spending will _____decrease_____