

**ECON 1010 Principles of Macroeconomics**

**Solutions to Midterm Exam #1**

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**Section 1: Multiple Choice and T/F (60 pts).** Circle the correct answer; each is worth two points.

- For an economist, the cost of something is:
  - the amount of money you paid for it.
  - what you gave up to get it.
  - always equal to its market value.
  - the quantity of resources used to produce it.

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- For a student that owns his or her own home and doesn't plan to live in the dorm the cost of going to college is:
  - tuition and the cost of housing.
  - tuition, the cost of housing, and the cost of books.
  - tuition, the cost of books, and forgone income.
  - forgone income only.

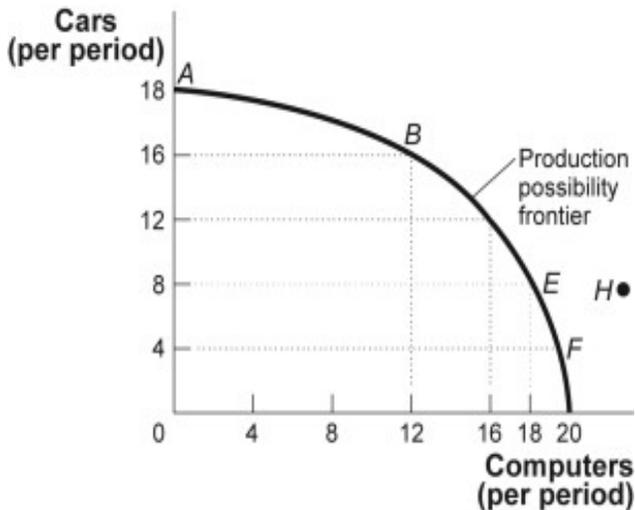
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- Which is a normative statement?
  - International trade leads to expanded consumption opportunities.
  - Higher expenditures on health care will reduce infant mortality rates.
  - To improve our economic security, we should reduce our dependence on oil imports.
  - Increased defense spending will lead to higher budget deficits.

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- If an economy is producing a level of output that is on its production possibility frontier, the economy has:
  - idle resources.
  - idle resources but is using resources efficiently.
  - no idle resources but is using resources inefficiently.
  - no idle resources and is using resources efficiently.

**5. Production Possibility Frontier**

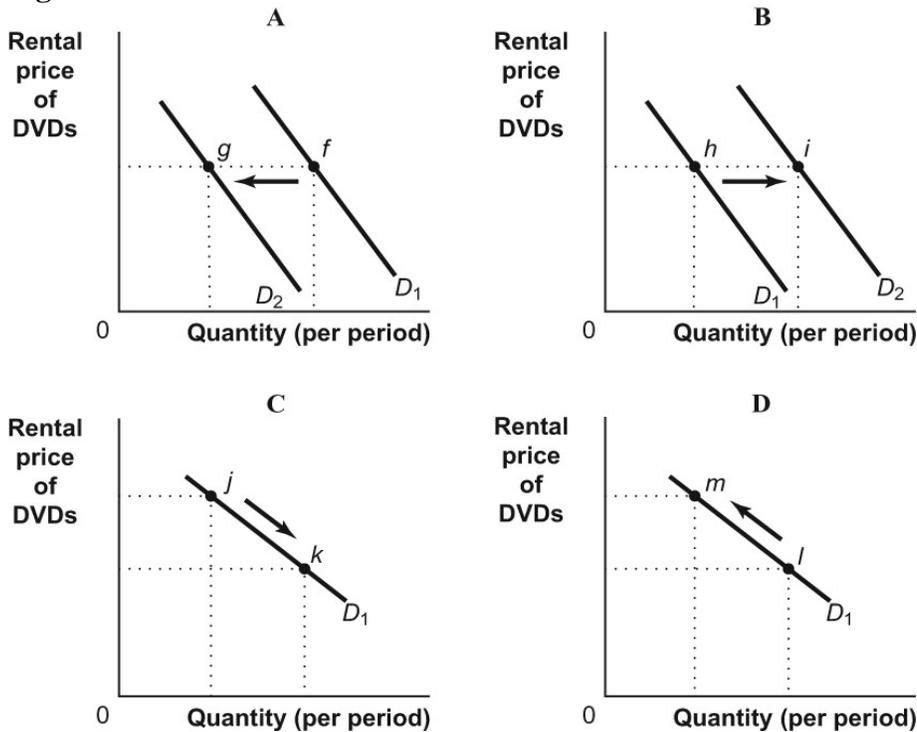


If the economy is operating at point *B*, producing 16 cars and 12 computers per period, a decision to move to point *E* and produce 18 computers:

- indicates you can have more computers and cars simultaneously.
- makes it clear that this economy has decreasing opportunity costs.
- involves a loss of 8 cars per period.
- involves a loss of 4 cars per period.

6. Free trade between countries:
- should be based on absolute advantage.
  - will allow wealthy countries to exploit less developed nations.
  - will shift the domestic production possibility frontier to the right.
  - will allow for greater levels of consumption than without trade.
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7. An economy is said to have a comparative advantage in the production of a good if it can produce that good:
- with more resources than another economy.
  - with a higher opportunity cost than another economy.
  - outside its production possibility frontier.
  - at a lower opportunity cost than another economy.
- 
8. A rightward shift of the demand curve shows that:
- something has happened to cause a lower quantity demanded at every given price.
  - something has happened to cause a higher quantity demanded at every given price.
  - the price of the product has increased.
  - the price of the product has decreased.
- 
9. In much of the country, homeowners choose to heat their houses with either natural gas or home-heating oil. Which statement would cause a change in the demand for natural gas?
- a change in the price of home-heating oil
  - a change in income
  - an increase in consumer tastes for natural gas as an energy source
  - all the above
- 
10. After graduation from college, Jill might have an increase in her income from a new job. If, as a result, she decides that she will purchase more T-bone steak and less hamburger, then, for her, hamburger would be considered:
- a normal good.
  - a substitute good.
  - a complementary good.
  - an inferior good.
- 
11. The market price of airline flights increased recently. Some economists suggest that the price increased because there has been an increase in the number of business travelers. They believe that in the market for flights:
- supply increased.
  - supply decreased.
  - demand increased.
  - demand decreased.
- 
12. Suppose that supply increases and demand decreases. What is the most likely effect on price and quantity?
- The price will increase, but quantity may increase, decrease, or stay the same.
  - The price will decrease, but quantity may increase, decrease, or stay the same.
  - The price will decrease and quantity will decrease.
  - The price will increase and quantity will increase.

13. Figure: Demand for DVDs



A decrease in the price of DVD players (a complement to DVDs) would result in a change illustrated by:

- the move from  $f$  to  $g$  in panel A.
- the move from  $h$  to  $i$  in panel B.
- the move from  $j$  to  $k$  in panel C.
- the move from  $l$  to  $m$  in panel D.

14. Assume that corn is an input in the production of beef but not in the production of pork. Further, beef and pork are substitutes in consumption. A decrease in the price of corn will:

- increase the supply of beef and increase the demand for pork.
- decrease the supply of beef and increase the demand for pork.
- decrease the supply of beef and decrease the demand for pork.
- increase the supply of beef and decrease the demand for pork.

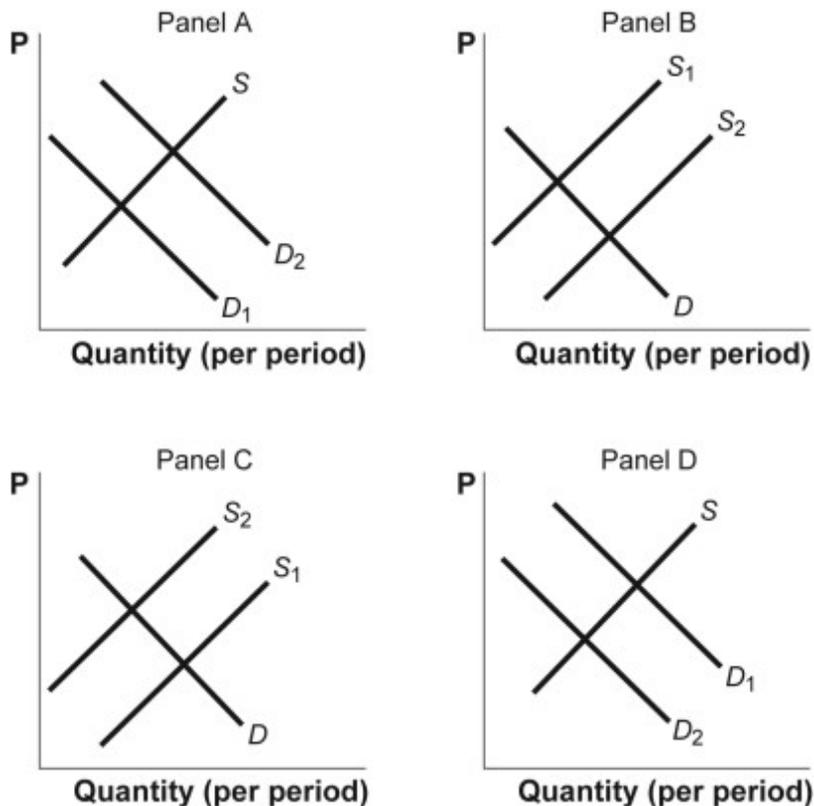
15. The total amount of the good that can be transacted under a quantity control is called the

- ceiling price.
- demand price.
- quota limit.
- supply price.

16. When a price ceiling is imposed beneath the equilibrium price, this results in:

- inefficiency resulting from overproduction of the good.
- inefficiency due to a reduction in the quantity of the good transacted below the equilibrium quantity.
- a decrease in wasted resources as consumers find such goods more easily.
- surpluses in the market, which eventually lead to inefficient production costs.

### 17. Figure: Shifts in Demand and Supply



The figure shows how supply and demand might shift in response to specific events. Suppose the technology for producing snowboards improves. Which panel best describes how this will affect the market for winter parkas, a complement in consumption of snowboards?

- a. panel A
- b. panel B
- c. panel C
- d. panel D

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18. Long-run growth is the sustained upward trend in:

- a. aggregate output per person over several decades.
- b. nominal GDP over time.
- c. interest rates over time.
- d. aggregate output per person over the business cycle.

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19. GDP measures the:

- a. money circulating through an economy during a year.
- b. value of the final goods and services produced within the borders of a country during a given period.
- c. value of the final goods and services produced by the citizens of a country regardless of their location during a given period.
- d. amount of government spending undertaken during a given period.

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20. Scenario: Real GDP

Suppose that in year 1 an economy produces 100 golf balls that sell for \$3 each and 75 pizzas that sell for \$8 each. The next year the economy produces 110 golf balls that sell for \$3.25 each and 80 pizzas that sell for \$9 each. Real GDP in year 2, using year 1 as the base year, is:

- a. \$900.
- b. \$970.
- c. \$1000.
- d. \$1,077.50.

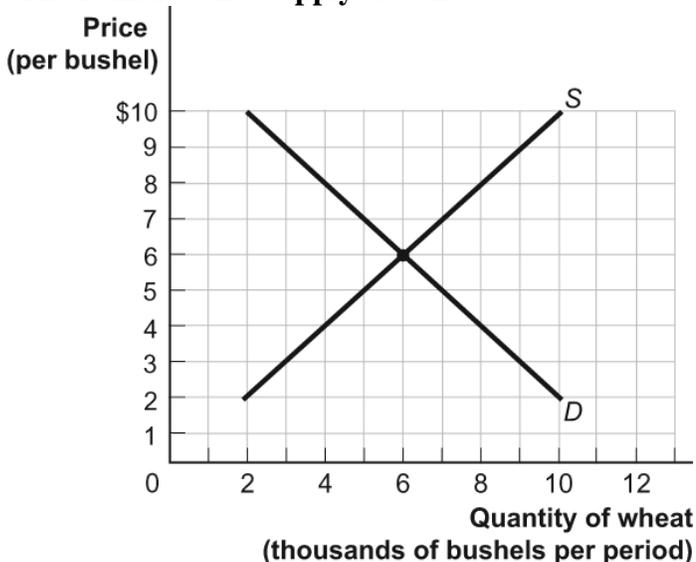
## 21. Table: Lemonade and Cookies

	2013 Output	2013 Prices	2014 Output	2014 Prices
Lemonade	200 glasses	\$1 per glass	220 glasses	\$1 per glass
Cookies	100 cookies	\$2 per cookie	100 cookies	\$2.25 per cookie

Assuming that the economy only produces lemonade and cookies, if 2013 is the base year, real GDP in 2013 was:

- a. \$400.
  - b. \$420.
  - c. \$425.
  - d. \$445.
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22. If GDP increases from \$10 trillion to \$12 trillion in a year, it could mean that aggregate output grew by 20 percent, that prices increased 20 percent, or that prices and aggregate output both increased.
- a. True
  - b. False
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23. Private savings is equal to:
- a. disposable income less taxes.
  - b. disposable income less consumption.
  - c. wealth.
  - d. wealth plus government transfer payments.
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24. In China, which would NOT be a resource in the production of rice?
- a. fertile land
  - b. labor
  - c. capital equipment
  - d. money
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## 25. The Demand and Supply of Wheat



If a price of \$8 temporarily exists in this market:

- a. a shortage of 2,000 bushels will result.
- b. a surplus of 4,000 bushels will result.
- c. a shortage of 4,000 bushels will result.
- d. a surplus of 6,000 bushels will result.

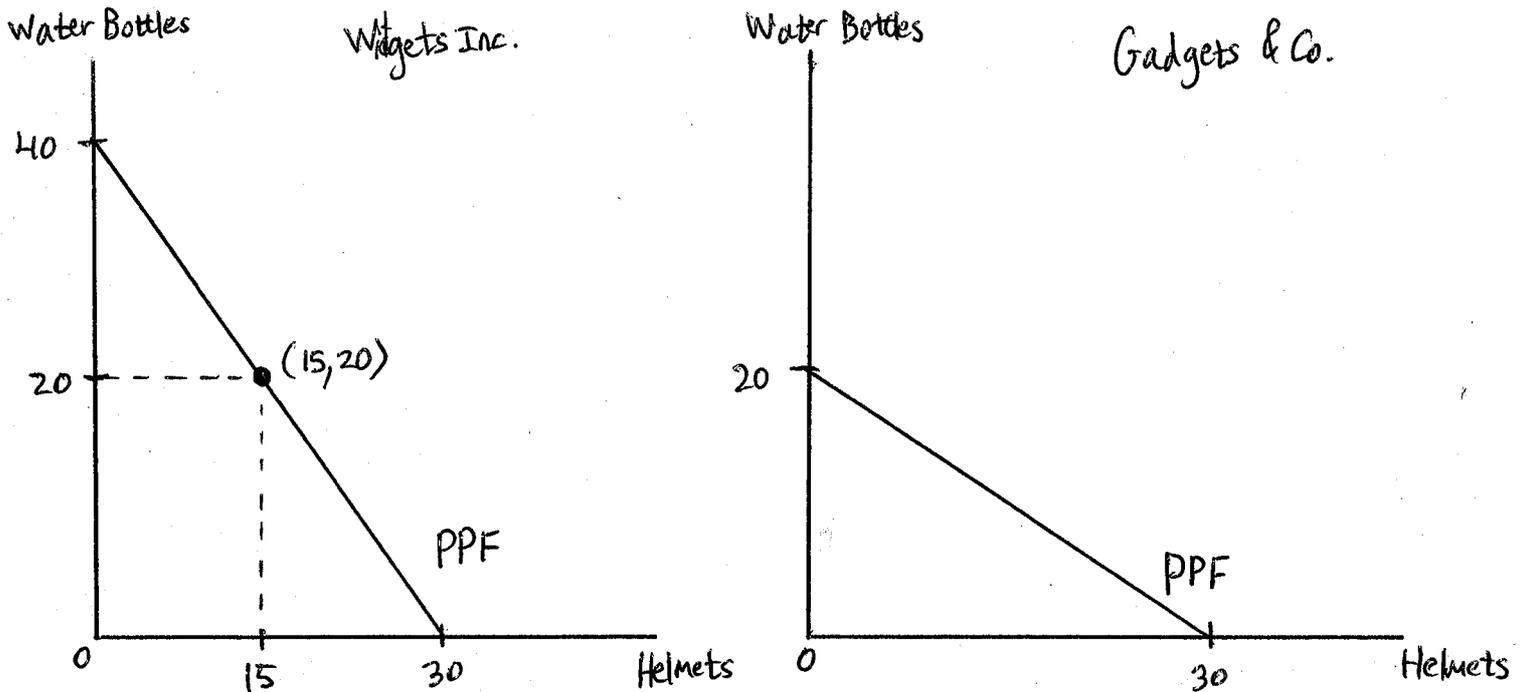
26. GDP is equal to the total amount of spending by consumers and firms on intermediate and final goods in a given year.
- a. True
  - b. False**
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27. The federal minimum wage in the U.S. is equal to Wyoming's minimum wage.
- a. True
  - b. False**
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28. The minimum wage is an example of a price ceiling.
- a. True
  - b. False**
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29. Deadweight loss is given by the triangular area between demand and supply to the right of a quantity restriction. It represents the loss to society from mutually beneficial trades that never occur.
- a. True**
  - b. False
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30. The historical pattern of unemployment during the business cycle is that workers are quickly laid off during recessions and slowly hired back during recoveries.
- a. True**
  - b. False

**Section 2: Short Answer Questions (40 pts).**

1. (20 pts) Widgets Inc. and Gadgets & Co. are two economies that produce only two goods: water bottles (B) and helmets (H). Given the same inputs, Widgets Inc. and Gadgets & Co. can produce a maximum output of each good according to the following table.

	Quantity of Water Bottles	Quantity of Helmets
Widgets Inc.	40	30
Gadgets & Co.	20	30

- a) Using the table above, draw PPF's for each of these two economies, assuming constant opportunity costs. Let the vertical axis be the quantity of water bottles and the horizontal axis be the quantity of helmets. Clearly label the horizontal and vertical intercepts.



- b) Assume that Widgets Inc. produces 20 water bottles and 15 helmets. Is this a feasible production combination? Is this combination efficient in production? Is this combination efficient in allocation? Explain your answers.

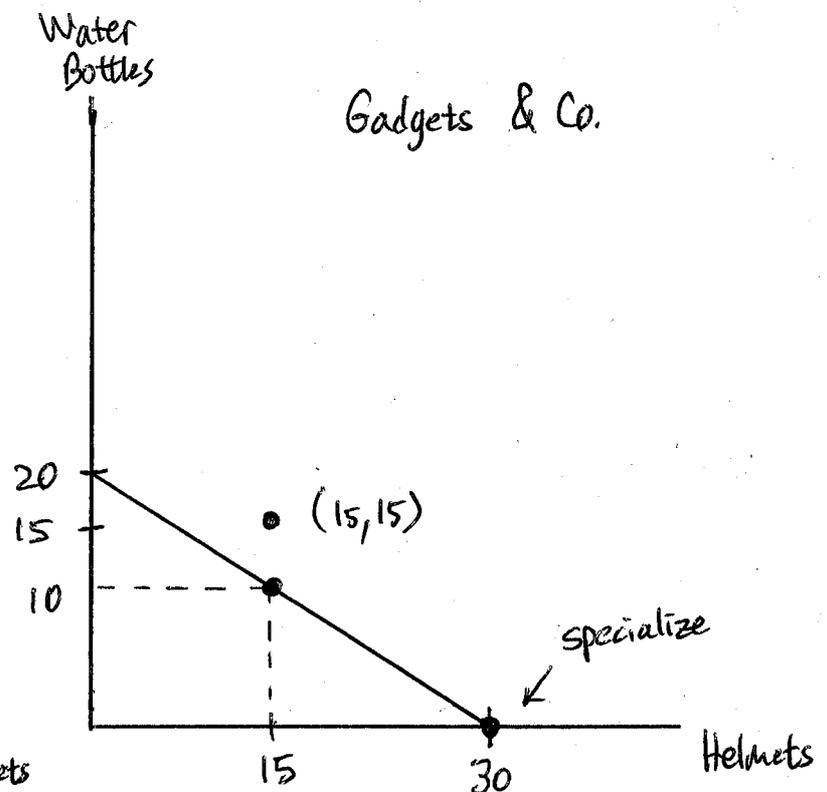
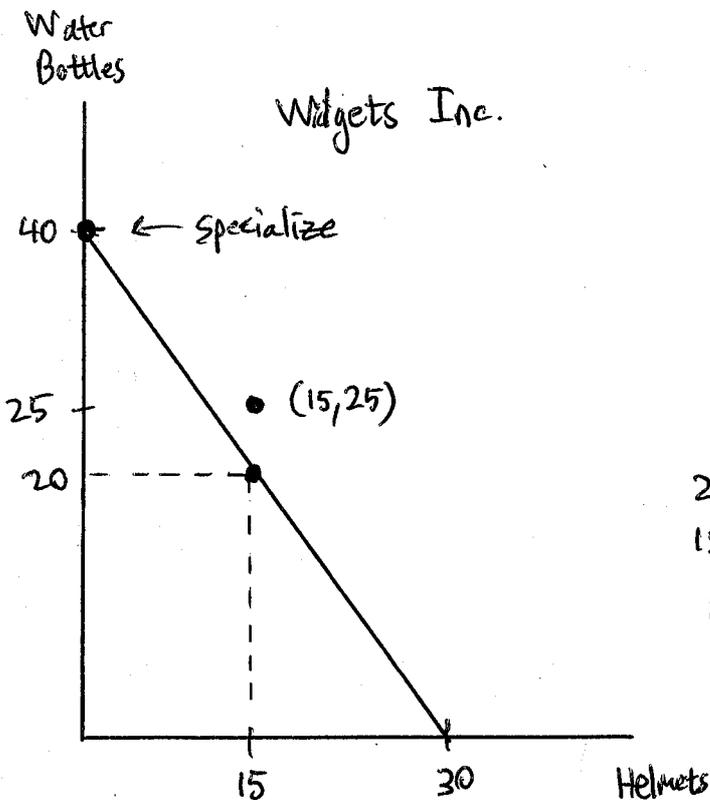
**SOLUTION.** As shown in the graph above, the combination of 20 water bottles and 15 helmets is a feasible production combination. It is located on the production possibilities frontier (PPF) so it is an efficient combination. It is not possible to say whether the combination is efficient in allocation. This depends on the preferences of households for water bottles and helmets.

- c) Which economy has an absolute advantage in production? Which economy has a comparative advantage in producing helmets and which in water bottles? Explain.

**SOLUTION.** Widgets Inc. has an absolute advantage in production because their PPF lies everywhere above (or on) the PPF for Gadgets & Co. The slope of the PPF is  $-4/3$  for Widgets Inc. and  $-2/3$  for Gadgets & Co. This means that Gadgets & Co. has a comparative advantage in producing helmets because they face a smaller opportunity cost for producing helmets. Gadgets & Co. give up two water bottles for every helmet produced, whereas Widgets Inc. gives up four water bottles for every helmet produced. Conversely, Widgets Inc. has a comparative advantage in producing water bottles.

- d) If each economy specializes in the good they have a comparative advantage in, determine a combination of output and trade for each country that allows both to consume outside of their PPF and show it graphically.

**SOLUTION.** Let Gadgets & Co. produce 30 helmets and Widgets & Co. produce 40 water bottles. Then if Gadgets & Co. keeps 15 helmets and trades 15 helmets, while Widgets & Co. keeps 25 water bottles and trades 15 water bottles; the consumption bundles for each economy will lie outside their respective PPFs. See below.



2. (20 pts) Assume 2014 is the base year for the calculations below. The table lists the prices and quantities of a fictional macroeconomy.

Year	Good A		Good B		Good C	
	Quantity	Price	Quantity	Price	Quantity	Price
2014	30	5	18	2	20	1
2015	32	6	16	4	24	1
2016	33	7	14	8	25	2

- a. Calculate nominal GDP in each of the three years in the table.

**SOLUTION. Nominal GDP for each year is**

- 2014:  $(30 \times 5) + (18 \times 2) + (20 \times 1) = 150 + 36 + 20 = 206$ .
- 2015:  $(32 \times 6) + (16 \times 4) + (24 \times 1) = 192 + 64 + 24 = 280$ .
- 2016:  $(33 \times 7) + (14 \times 8) + (25 \times 2) = 231 + 112 + 50 = 393$ .

- b. Calculate real GDP in each of the three years in the table. Is the economy growing? If so, explain how that can be true when the quantity of Good B is falling over time.

**SOLUTION. Real GDP (in 2014 prices) for each year is**

- 2014:  $(30 \times 5) + (18 \times 2) + (20 \times 1) = 150 + 36 + 20 = 206$ .
- 2015:  $(32 \times 5) + (16 \times 2) + (24 \times 1) = 160 + 32 + 24 = 216$ .
- 2016:  $(33 \times 5) + (14 \times 2) + (25 \times 1) = 165 + 28 + 25 = 218$ .

**Yes, the economy is growing despite the fall in the production in Good B. Economic growth is an aggregate concept. The important thing is that overall production is growing on average.**

- c. For each transactions below, explain why it would or would not be counted in U.S. GDP for this year.

- You buy a house in Boise, ID built 15 years ago.

**Not in current GDP. The house counted in GDP 15 years ago when it was built.**

- Your parents pay tuition for college this semester.

**In current GDP. Tuition is a service component of consumption.**

- Micron, a U.S. based company, opens a plant in China and then imports computer chips to the U.S.

**Not in current GDP. Even though Micron is a U.S. company the production happens outside the U.S. borders.**

- The U.S. issues a bond to a French investor.

**Not in current GDP. Stocks and bonds are not counted in GDP.**

- You pay your taxes and a portion of it funds a grandparent's social security check.

**Not in current GDP. Social security is a transfer payment and does not reflect current production.**