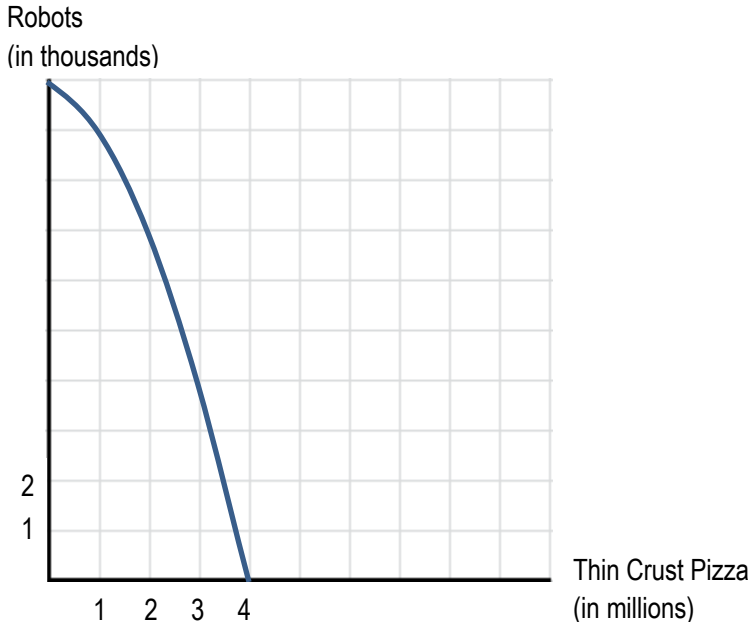


CLUTCH

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CONCEPT: PRODUCTION POSSIBILITIES FRONTIER (PPF) – INTRODUCTION AND PRODUCTIVE EFFICIENCY

- The **PPF** is a graph showing the combinations of output an economy can produce with its available resources.



Assumptions:

- Unattainable** – any point outside the PPF curve
- Attainable** – any point on the PPF curve or inside the curve
 - **Productive Efficiency** – producing at any point on the PPF curve
 - **Allocative Efficiency** – producing the correct mix based on consumer preferences

EXAMPLE:

Assume Clutchtopia features the PPF curve illustrated above. Mark the following levels of production as Attainable (A) or Unattainable (U). If production is attainable, mark the level of production as Efficient (E) or Inefficient (I).

Levels of Production	A/U	E/I
5,000,000 Pizzas and 3,000 Robots		
1,000,000 Pizzas and 9,000 Robots		
4,000,000 Pizzas and 0 Robots		
3,000,000 Pizzas and 3,000 Robots		
2,000,000 Pizzas and 7,000 Robots		

PRACTICE: A point inside the production possibilities frontier is

- a. Attainable, but inefficient
- b. Efficient, but unattainable
- c. Efficient and attainable
- d. Inefficient and unattainable

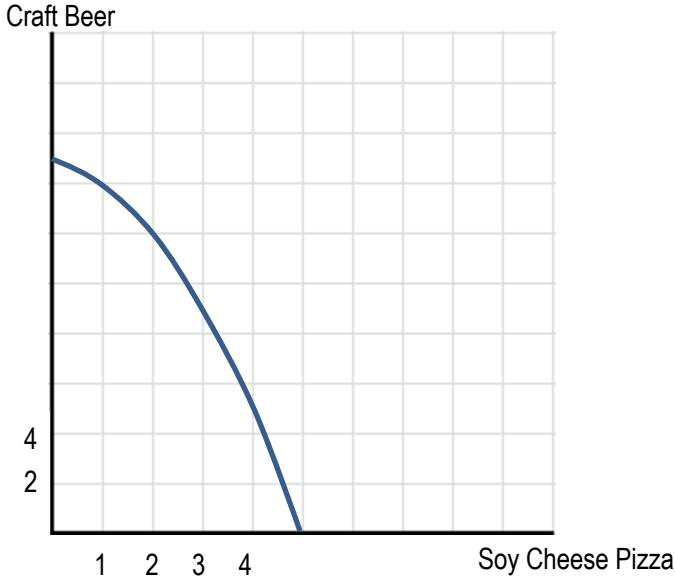
PRACTICE: The economy of Clutchtopia can be summarized as seen on the PPF below. Consider the production mixes denoted alongside the graph. Mark the levels of production as Attainable (A) or Unattainable (U). If production is attainable, mark the level of production as Efficient (E) or Inefficient (I).



Levels of Production	A/U	E/I
3,000,000 Butter and 6,000 Guns		
2,000,000 Butter and 5,000 Guns		
0 Butter and 6,000 Guns		
1,000,000 Butter and 4,000 Guns		
2,000,000 Butter and 3,000 Guns		
0 Butter and 0 Guns		

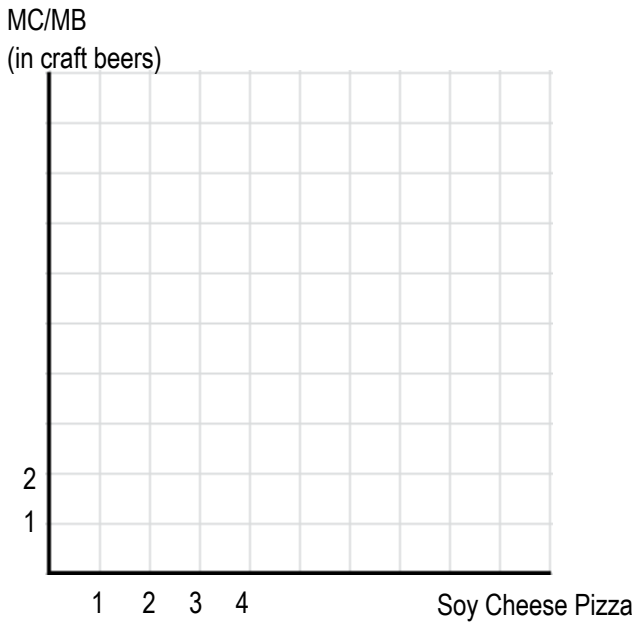
CONCEPT: PPF – INCREASING MARGINAL OPPORTUNITY COSTS AND ALLOCATIVE EFFICIENCY

- The PPF *bows outward*. Each increase in production of one good causes the other good's production to fall faster.



Increasing Marginal Opportunity Costs	
Number of Pizzas	Marginal Cost (MC)
0	
1	
2	
3	
4	

- **Allocative Efficiency** – the mix of production where _____



Important:

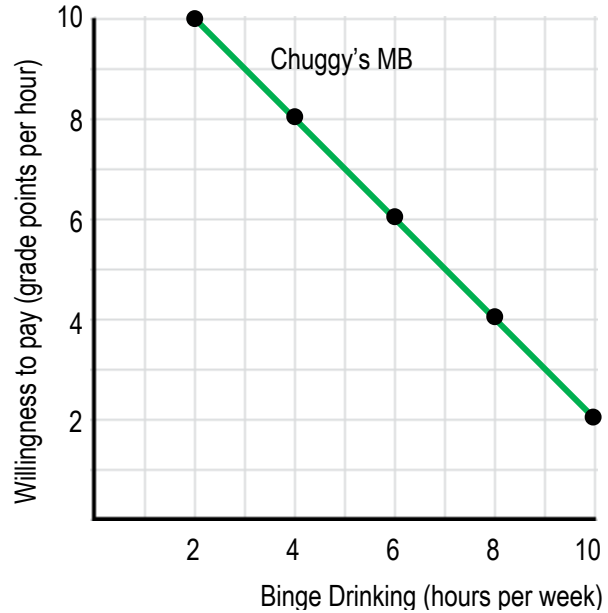
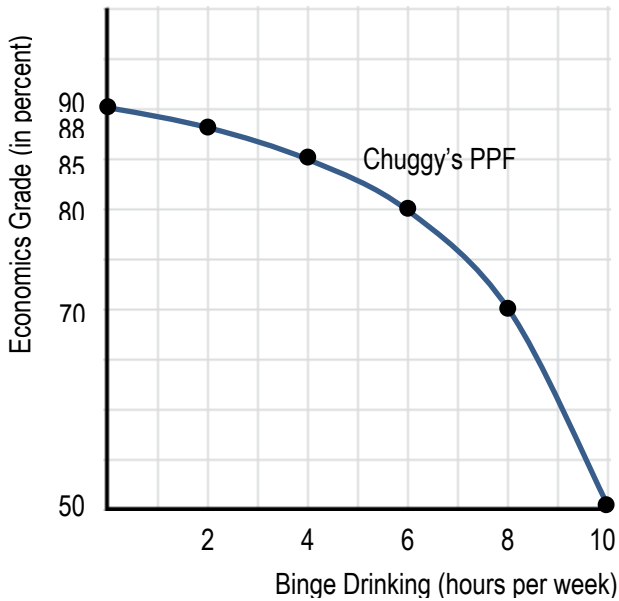
- The Marginal Benefit (MB) curve is _____ to the PPF. **MB depends on consumer willingness to pay.**
- We plot the MC curve from the _____ of each additional unit.

Number of Pizzas	Marginal Cost (MC)	Willingness to Pay (MB)
0.5		
1.5		
2.5		
3.5		
4.5		

Allocative Efficiency Quantity:

Soy Cheese Pizzas _____ Craft Beers _____

PRACTICE: Chuggy wants to earn a high grade in his microeconomics class, but also loves going to parties and binge drinking. The first graph illustrates Chuggy's PPF. The second graph denotes his MB curve from binge drinking.



1. What is Chuggy's marginal cost of binge drinking if he parties for three hours a week?
 - a. 1 percentage point
 - b. 1.5 percentage points
 - c. 2 percentage points
 - d. 3 percentage points
 - e. 5 percentage points

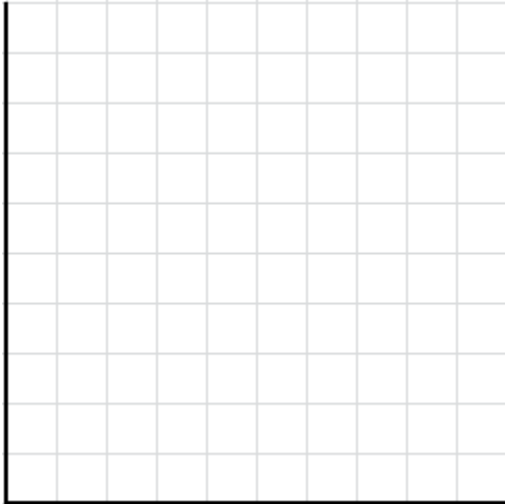
2. If Chuggy achieves allocative efficiency, how many hours does he spend binge drinking per week?
 - a. 3 hours
 - b. 4 hours
 - c. 5 hours
 - d. 6 hours
 - e. 7 hours

3. What is Chuggy's economics grade when he achieves allocative efficiency?
 - a. 60 percent
 - b. 70 percent
 - c. 76 percent
 - d. 82 percent
 - e. 85 percent

CONCEPT: PPF – OUTWARD SHIFTS

- Over time, societies generally become more productive. The PPF shifts to account for new levels of productivity.

- A **technological advance** in a particular industry



- A **general increase** in the availability of resources, quality improvements, or technology



PRACTICE: The country of Clutchtopia has just stumbled upon a new technology as shown on the graph.



1. If Clutchtopians demand 3 million pizza bagels, what is the productively efficient increase in robot production?

- a) 0
- b) 1 thousand
- c) 2 thousand
- d) 4 thousand

2. What type of PPF shift did Clutchtopia experience?

- a) Technological advance in the production of robots
- b) Technological advance in the production of pizza bagels
- c) General increase in the productivity of technology
- d) Decrease in pizza bagel production efficiency

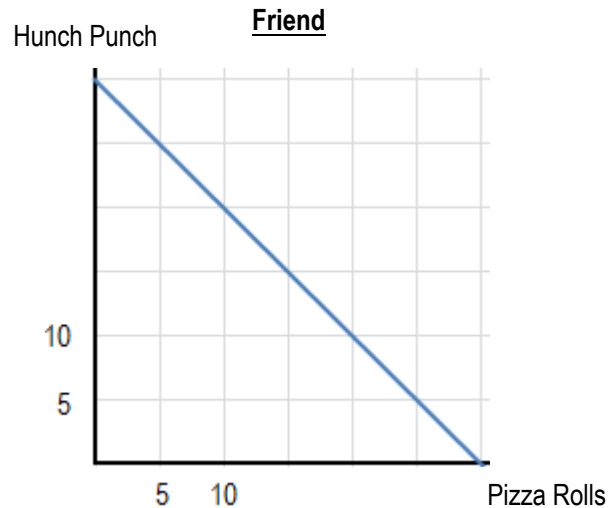
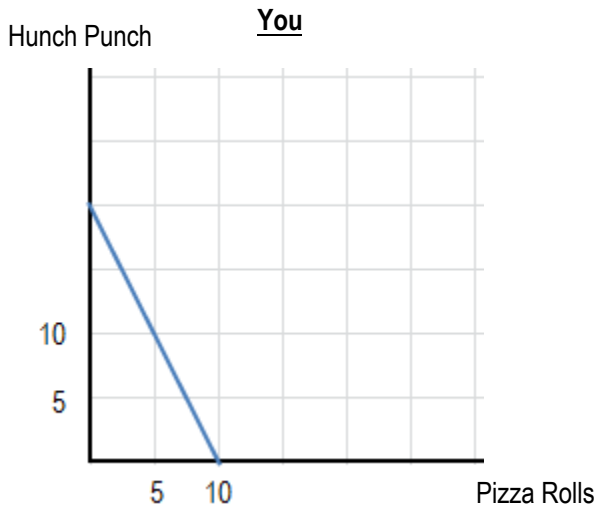
3. What is the maximum amount of robots that can be produced in Clutchtopia after the shift?

- a) 0
- b) 2 thousand
- c) 4 thousand
- d) 6 thousand

CONCEPT: PPF – COMPARATIVE ADVANTAGE AND ABSOLUTE ADVANTAGE

- Different individuals (i.e. people, firms, countries) have different PPFs.

Note: • Linear PPFs • Assumptions remain the same (two goods, fixed technology, fixed resources).



□ **Specialization** – producing the goods you are _____ at producing

- **Absolute Advantage** – producing more of a good with the _____ amount of resources

Pizza Rolls:

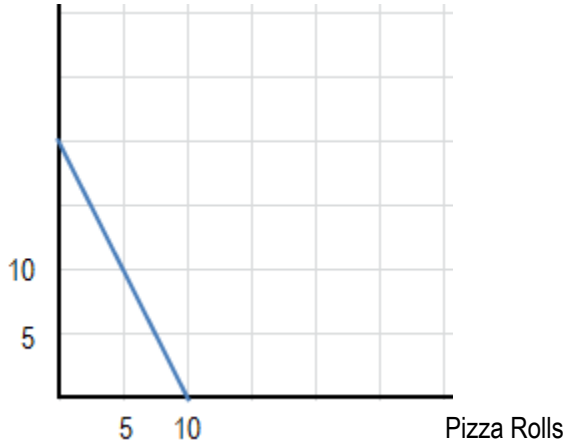
Hunch Punch:

- **Comparative Advantage** – producing a good at a _____ opportunity cost

CONCEPT: PPF – COMPARATIVE ADVANTAGE AND ABSOLUTE ADVANTAGE

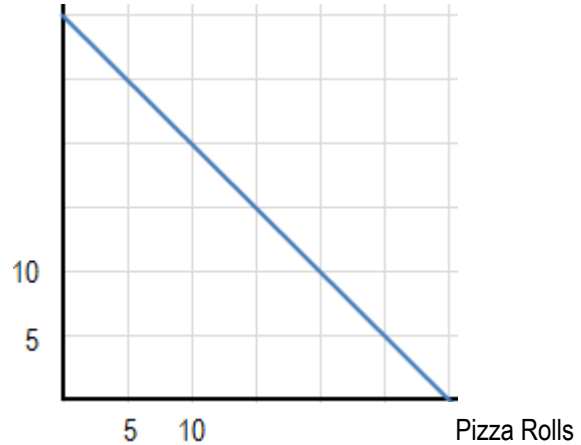
Hunch Punch

You



Hunch Punch

Friend



Comparative Advantage – producing a good at a _____ opportunity cost

Calculating Opportunity Cost using the PPF:

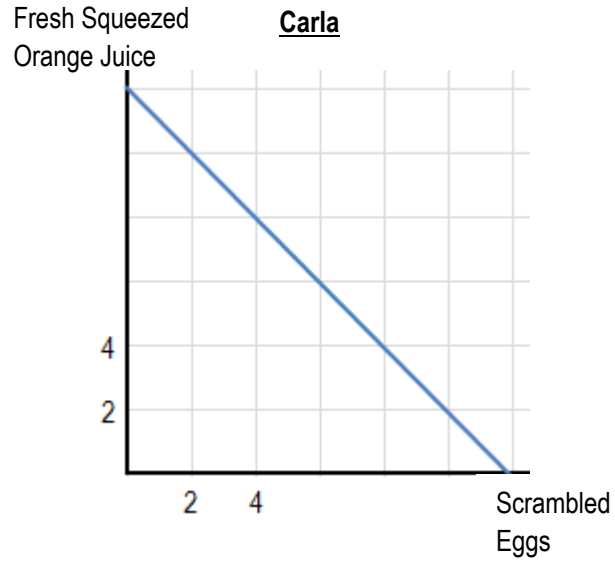
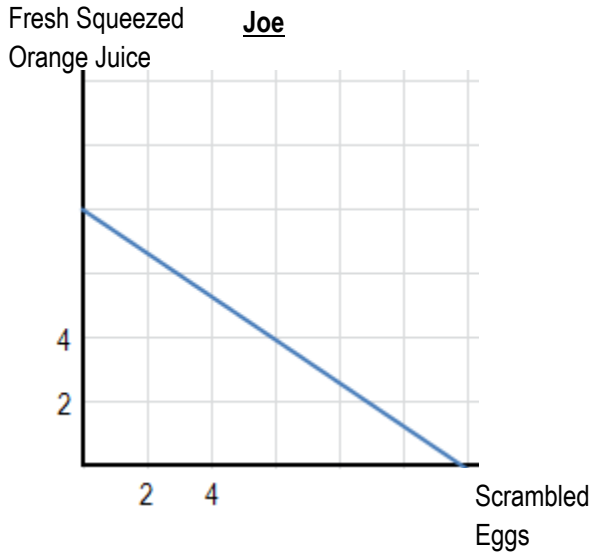
1. Choose an individual (You or Friend)
2. Identify the individual's maximum for each good (Max Pizza Rolls and Max Hunch Punch)
3. Use the following formula:

$$\text{Opportunity Cost of 1 Pizza Rolls} = \frac{\text{Max Hunch Punch}}{\text{Max Pizza Rolls}} \text{ for that person}$$

	Opportunity Cost of 1 Pizza Rolls	Opportunity Cost of 1 Hunch Punch
You		
Friend		

Comparative Advantage	

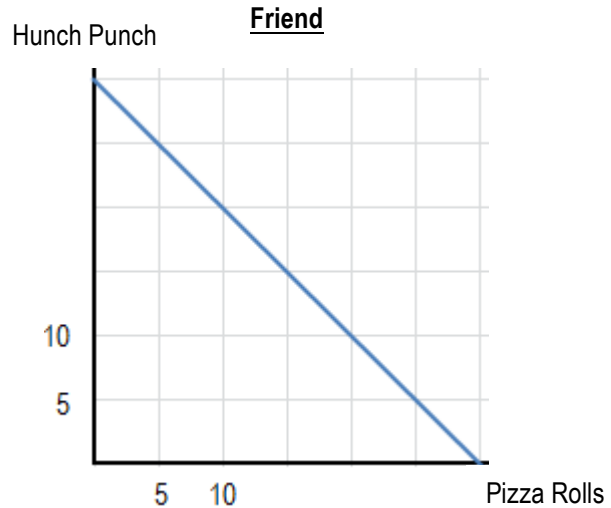
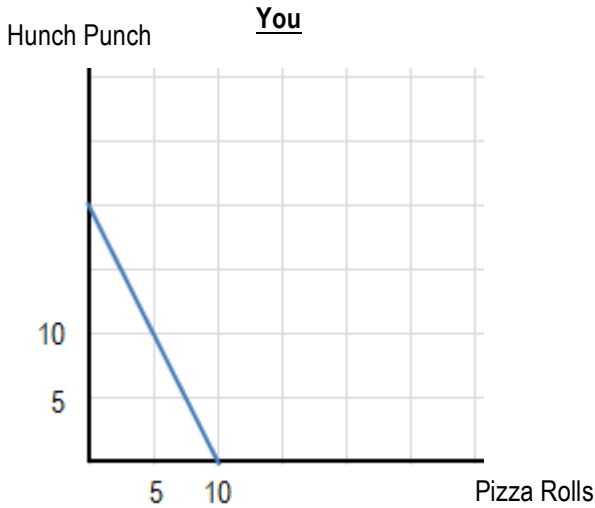
PRACTICE: Answer the following questions based on these graphs:



1. Who has the absolute advantage in making scrambled eggs?
a) Joe b) Carla c) No One
2. Who has the absolute advantage in making fresh squeezed orange juice?
a) Joe b) Carla c) No One
3. Who has the comparative advantage in making scrambled eggs?
a) Joe b) Carla c) No One
4. Who has the comparative advantage in making fresh squeezed orange juice?
a) Joe b) Carla c) No One

CONCEPT: PPF – COMPARATIVE ADVANTAGE AND TRADE

- It is possible to reach levels of consumption _____ through specialization and trade.
 - Both producers should specialize in the product where they have a _____.



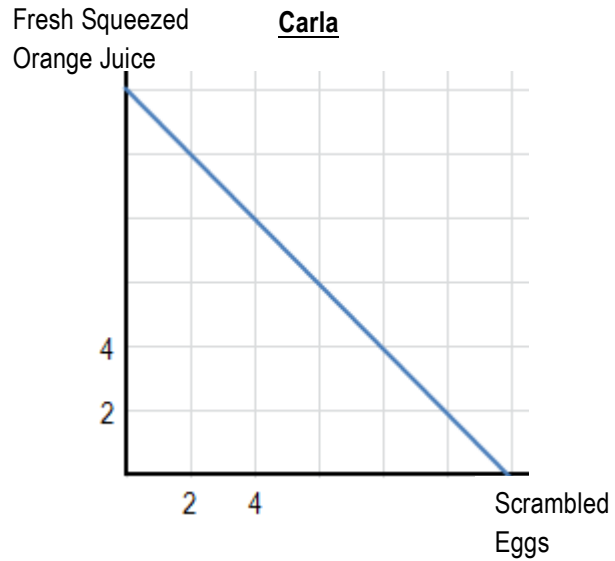
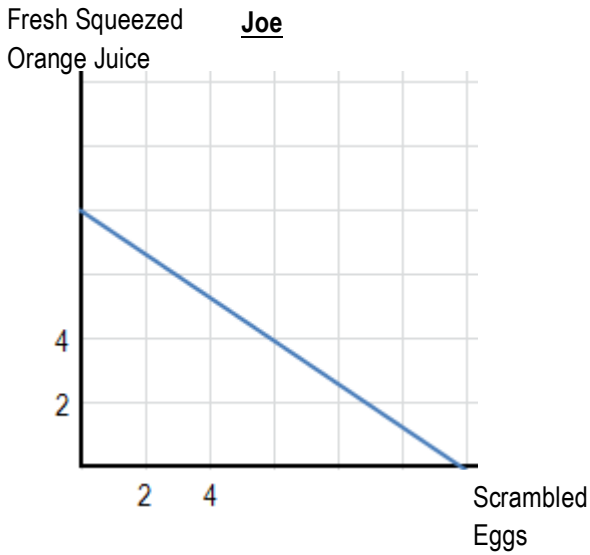
	Opportunity Cost of 1 Pizza Rolls	Opportunity Cost of 1 Hunch Punch
You	2 Hunch Punch	½ Pizza Rolls
Friend	1 Hunch Punch	1 Pizza Rolls

- Assume that the *price of the trade* is set to 1.5 gallons of hunch punch for 1 pizza.

You Before Trade	_____ PR _____ HP
Friend Before Trade	_____ PR _____ HP

	Trade 5 PRs for _____ gallons of HP	Trade 10 PRs for _____ gallons of HP	Trade 13.33 PRs for _____ gallons of HP	Trade 30 PRs for _____ gallons of HP
You After Trade	_____ PR _____ HP	_____ PR _____ HP	_____ PR _____ HP	_____ PR _____ HP
Friend After Trade	_____ PR _____ HP	_____ PR _____ HP	_____ PR _____ HP	_____ PR _____ HP

PRACTICE: Answer the following questions based on these graphs:



If Joe and Carla plan to specialize and trade, what should Joe produce?

- a) Only Scrambled Eggs
- b) Only Fresh Squeezed Orange Juice
- c) 6 Eggs and 4 OJ
- d) 2 Eggs and 4 OJ

If Joe and Carla plan to specialize and trade, what should Carla produce?

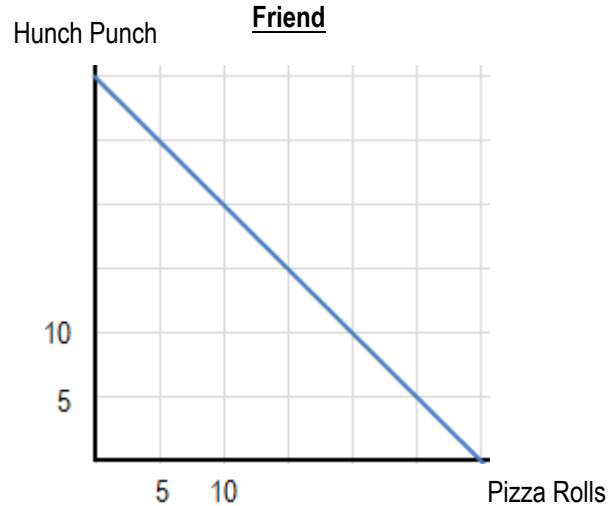
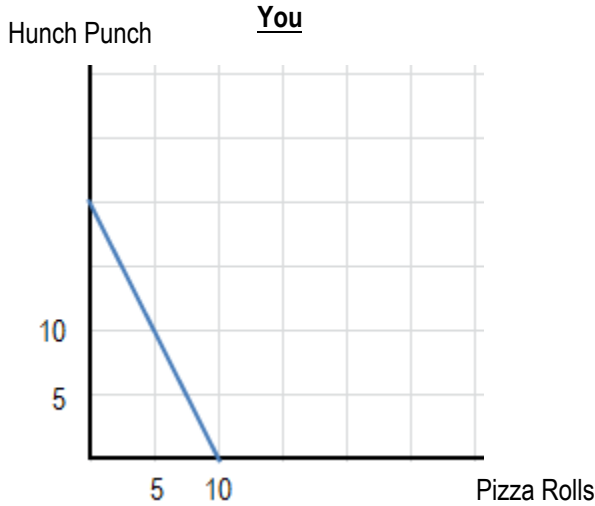
- a) Only Scrambled Eggs
- b) Only Fresh Squeezed Orange Juice
- c) 6 Eggs and 6 OJ
- d) 10 Eggs and 2 OJ

Assume that Joe and Carla will trade Scrambled Eggs and Fresh Squeezed Orange Juice at a rate of 1.2 Eggs for 1 OJ. If Joe's consumption after trade includes six eggs, what will be Carla's consumption after trade?

- a) 6 Eggs and 6 OJ
- b) 0 Eggs and 12 OJ
- c) 6 Eggs and 7 OJ
- d) 1.2 Eggs and 11 OJ

CONCEPT: PPF – THE PRICE OF THE TRADE

- For trade to be beneficial to both trading partners, the *price of the trade* must lie _____ their opportunity costs.



	Opportunity Cost of 1 Pizza Rolls	Opportunity Cost of 1 Hunch Punch
You	2 Hunch Punch	½ Pizza Rolls
Friend	1 Hunch Punch	1 Pizza Rolls
	Price of the Trade:	Price of the Trade:

Why was the trade set at 1.5?

- Supply and Demand of Pizza Rolls and Hunch Punch
- Negotiating Power
- Equity