

# Economics 101 - Handout 3

## Solutions

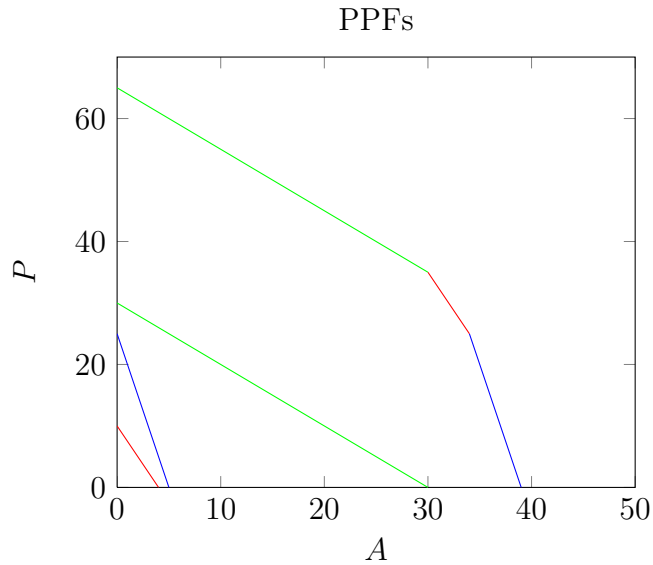
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### Exercise 1

	Maximum Productions		Opportunity Costs	
	Palindromes	Anagrams	P/A	A/P
Alice	10	4	5/2	2/5
Bob	25	5	5/1	1/5
Charlie	30	30	1/1	1/1

- (a) Charlie has absolute advantage in both goods.
- (b) Bob has comparative advantage in palindromes. Charlie has comparative advantage in anagrams.
- (c) Assuming anagrams on the horizon and palindromes on the vertical, the endpoints are (0, 65) and (39, 0). The kinks are at (30, 35) and (34, 25). The kinks are the points where Bob and Charlie specialize in their comparative advantages. The kinks are differentiated by what good Alice chooses to specialize in. (In the plot below, Alice's PPF is the red line, Bob's is the blue, and Charlie's in the green. The joint PPF is graphed above them, with the sections colored according to the corresponding individual PPFs.)



## Exercise 2

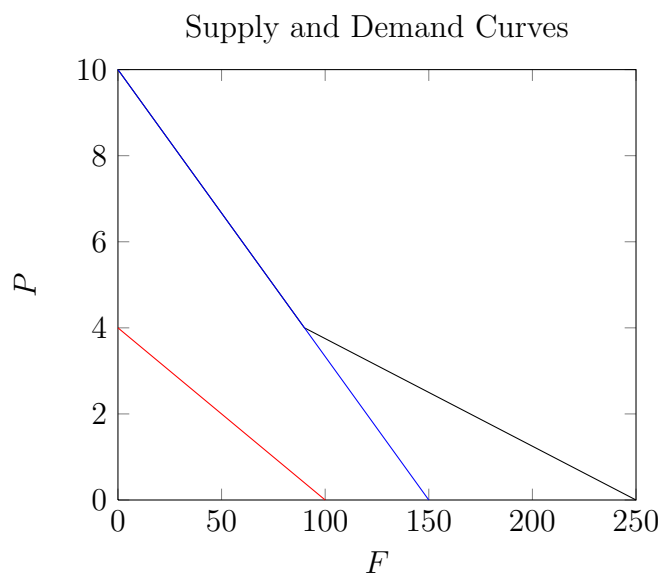
- (a) See table above. Alice specializes in anagrams, Bob in palindromes.
- (b) Alice will accept no fewer than 2.5 palindromes for each of her anagrams, because she can make palindromes herself at a rate of 5 palindromes for every 2 anagrams.
- (c) Bob will offer no more than 5 palindromes for each anagram, because he can make anagrams himself at a rate of 1 anagram for every 5 palindromes.

## Exercise 3

- (a) Total Demand is

$$F_T = \begin{cases} 250 - 40P & : 0 \leq P \leq 4 \\ 150 - 15P & : 4 \leq P \leq 10 \\ 0 & : P \geq 10 \end{cases}$$

A graph of the curves is below (Blue is Eve, Red is David, Black is total. Notice how Eve's curve overlaps the total at prices above 4 since David demands nothing above that price.



Note we are horizontally summing the two curves (assuming  $P$  is on the vertical as is customary). From  $P$  between 0 and 4, we sum  $100 - 25P$  and  $150 - 15P$ . From 4 to 10, Charlie's demand is zero, so the total demand in that region is Eve's only. Above 10, both are zero.

- (b) To solve for quantity demanded at  $P = 5$  first note in which part of the function,  $P = 5$  lies. We can see that it lies in the higher range where the demand curve is expressed by  $F_T = 150 - 15P$ , thus we plug 5 into that equation and find total demand at a price of \$5 is 75.
- (c) Without David's demand, the total demand curve is now simply Eve's, but at a price of \$5, David's demand was already zero, thus David's unfortunate allergy has no effect on the total demand at the given price.
- (d) If sauce becomes easier to make, you might expect an increase in supply resulting in a decrease in price.