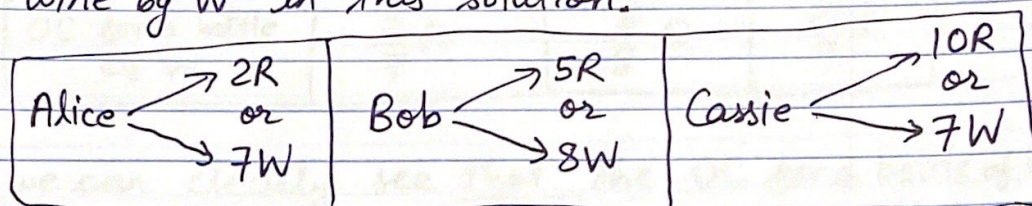
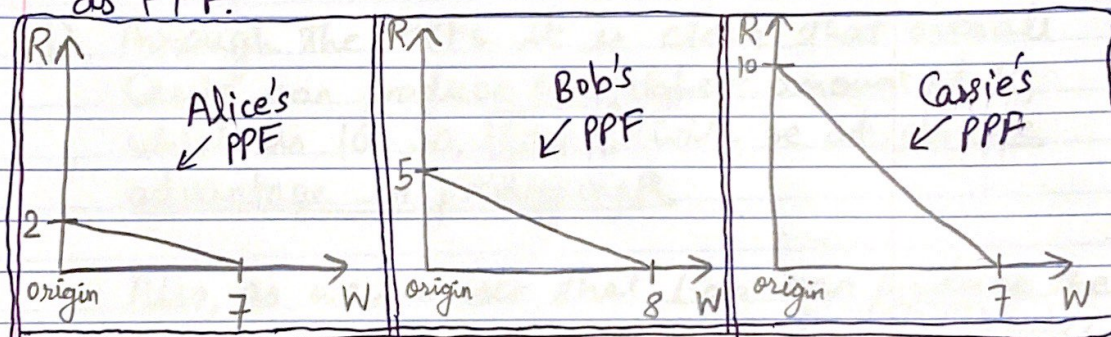


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1. I will represent red wine by "R", and white wine by "W" in this solution.



- (a) I will represent the Production Possibilities Frontiers as PPF.



- (b) I will abbreviate Opportunity cost by OC.

$\Rightarrow$  OC for a bottle of R in case of Alice is  $\frac{7}{2} W$

$\Rightarrow$  OC for a bottle of R in case of Bob is  $\frac{8}{5} W$

$\Rightarrow$  OC for a bottle of R in case of Cassie is  $\frac{7}{10} W$

Because,  $\left[ \text{OC for a bottle of R} \right] = \frac{\text{number of W, when devoting full time to it}}{\text{number of R, when devoting full time to it}}$



(c) Since, Cassie has the lowest opportunity cost for a bottle of R, we can say that she will have comparative advantage in producing R.

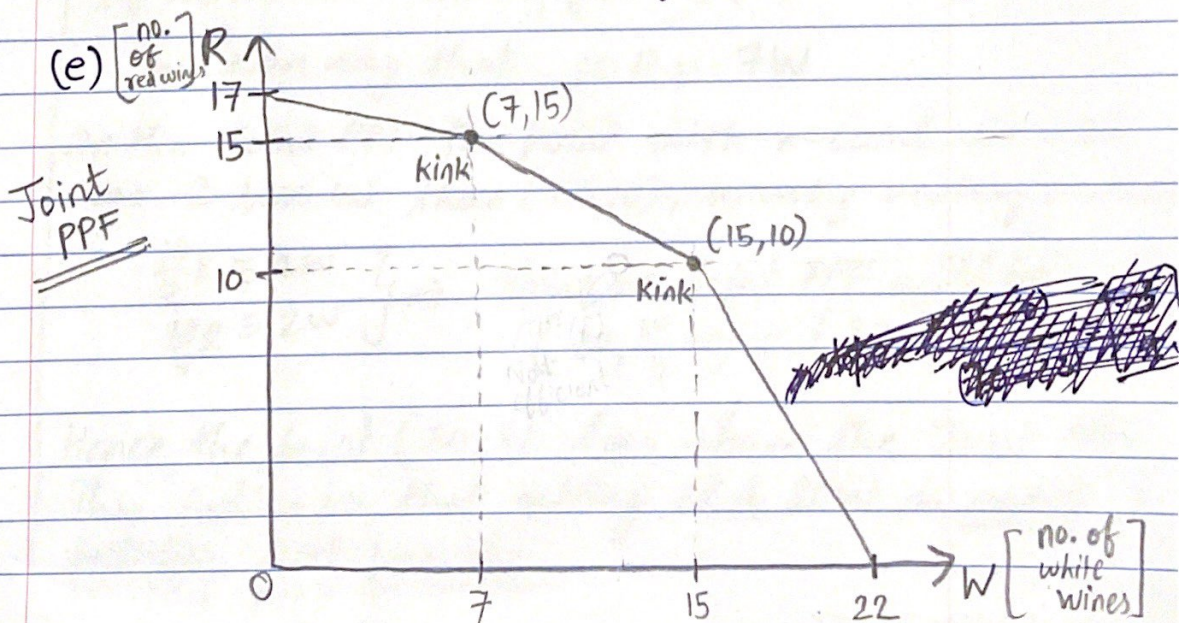
The OC for a bottle of W will be as follows:

	Alice	Bob	Cassie
OC for a bottle of W	$\frac{2}{7}R$	$\frac{5}{8}R$	$\frac{10}{7}R$

we can clearly see that the OC for a bottle of W is least in case of Alice. Hence, she will be at a comparative advantage in producing W.

(d) Through the PPFs it is clear that overall Cassie can produce the highest amount of R, which is 10. So, Cassie will be at absolute advantage in producing R.

Also, as we can see that Bob can produce the highest amount of W, which is 8. So, Bob will be at absolute advantage in producing W.





(f)  $12R \& 10W$   $\rightarrow$  point is  $(10, 12)$  according to sketched Joint PPF.

If we consider moving from  $(7, 15)$  to  $(15, 10)$ ,  
we can say that  $8R \equiv 5W$

On the Joint PPF, the point with  $x$ -coordinate = 10 has 3 more  $W$  than  $(7, 15)$ , so using unitary method.

$$\left. \begin{array}{l} 8R \equiv 5W \\ \therefore \frac{8}{5}R \equiv 1W \\ \therefore \frac{24}{5}R \equiv 3W \end{array} \right\} \Rightarrow \text{So, the point of Joint PPF will be } \left(10, 15 + \frac{24}{5}\right) \equiv (10, 19.8)$$

Hence, the point  $(10, 12)$  clearly lies below the Joint PPF. This indicates that getting  $12R \& 10W$  is not efficient, but certainly possible.

$6R \& 20W$   $\rightarrow$  point is  $(20, 6)$  according to sketched Joint PPF

If we consider moving from  $(15, 10)$  to  $(22, 0)$ ,  
we can say that  $10R \equiv 7W$

On the Joint PPF, the point with  $x$ -coordinate = 20 has 2 less  $W$  than  $(22, 0)$ , so using unitary method

$$\left. \begin{array}{l} \frac{10}{7}R \equiv 1W \\ \frac{20}{7}R \equiv 2W \end{array} \right\} \Rightarrow \text{Point on Joint PPF will be } \left(20, \frac{20}{7} + 0\right) = \left(20, \frac{20}{7}\right)$$

Hence, the point  $(20, 6)$  lies above the Joint PPF. This indicates that getting  $6R \& 20W$  is not possible.



(9) As we know, Bob has lower opportunity cost to produce a bottle of R compared to Alice, Bob will specialise in producing R. Thus, Alice will specialise in producing W.

Bob will be willing to trade R for anything higher than his OC for one bottle of R

$\Rightarrow$  Prices suitable for Bob:  $1R = \left(\frac{8}{5}W, \infty\right)$

Alice will be willing to buy R for anything lesser than her OC for one bottle of R.

$\Rightarrow$  Prices suitable for Alice:  $1R = \left(0, \frac{7}{2}W\right)$

So, Alice and Bob can trade by agreeing to any price between  $\left(\frac{8}{5}W, \frac{7}{2}W\right) \Rightarrow \boxed{(1.6W, 3.5W)}$



(h) Mutually agreed upon price is  $1R = \cancel{2W}$   $2W$ .

Alice can accept anything more than her OC for one R  $\Rightarrow (\frac{7}{2}W, \infty)$

Bob can accept anything more than his OC for one R  $\Rightarrow (\frac{8}{5}W, \infty)$

Cassie can accept anything more than her OC for one R  $\Rightarrow (\frac{7}{10}W, \infty)$

As Cassie has lowest OC for one R, she will specialise in R.

Alice will specialise in white because she will get maximum benefit because  $2W$  is lower than her OC.

(i) ~~⇒ Cassie~~ Alice is ready to give anything below  $3.5W$  for  $1R$ .

⇒ Bob is ready to give anything below  $1.6W$  for  $1R$ .

⇒ Cassie is ready to take anything above  $0.7W$  for  $1R$ .

~~continued~~

So, Cassie will be better off persuading Alice as she can get  $3.5W$  for  $1R$ , which is way higher than what she could expect from Bob at most (which is  $1.6W$ ).