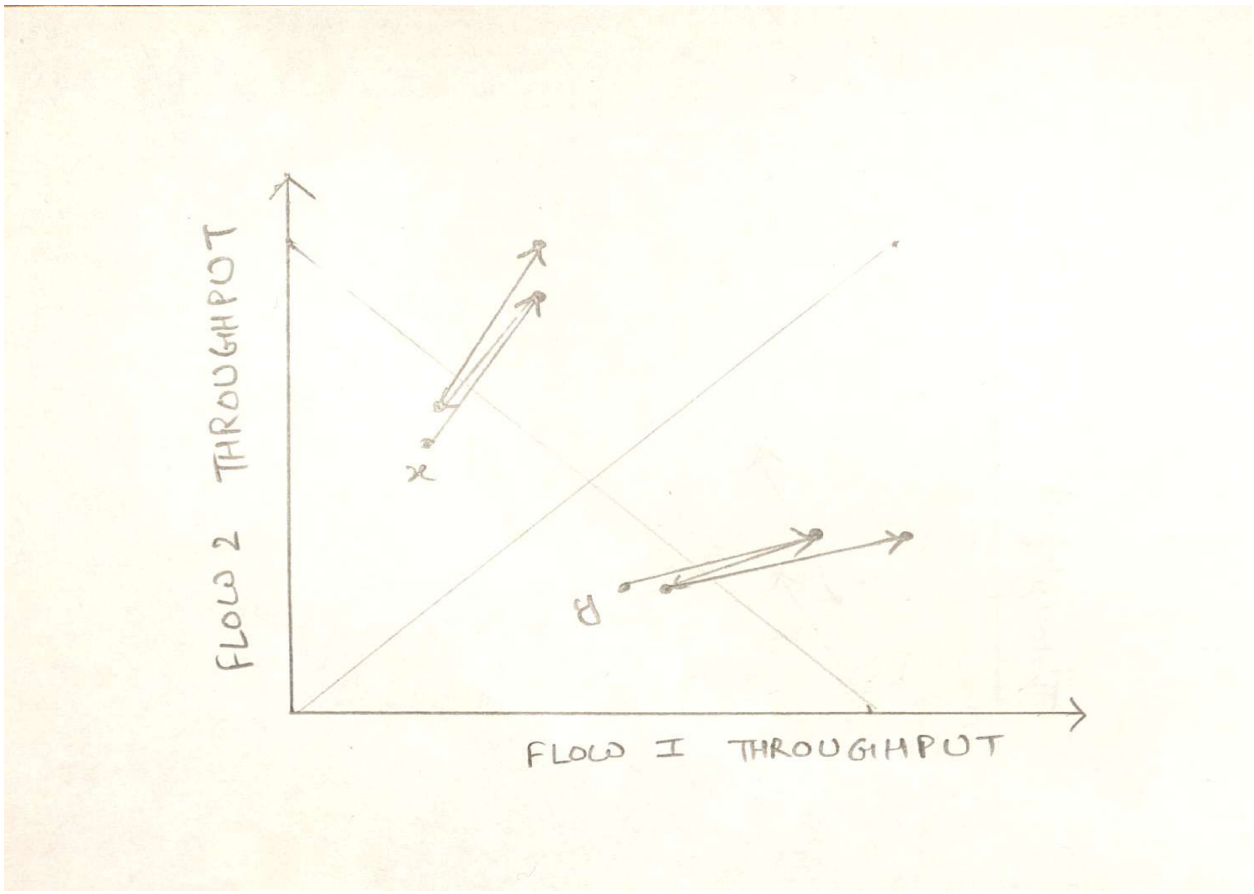
Part - D

Question - 4. Using the same technique discussed in class explain why (1) Multiplicative Increase Additive Decrease, (2) Multiplicative Increase Multiplicative Decrease, and (3) Additive Increase, Additive Decrease, are not fair. Use a figure, similar to slide 8 to illustrate your answer. Try to draw your own figure.

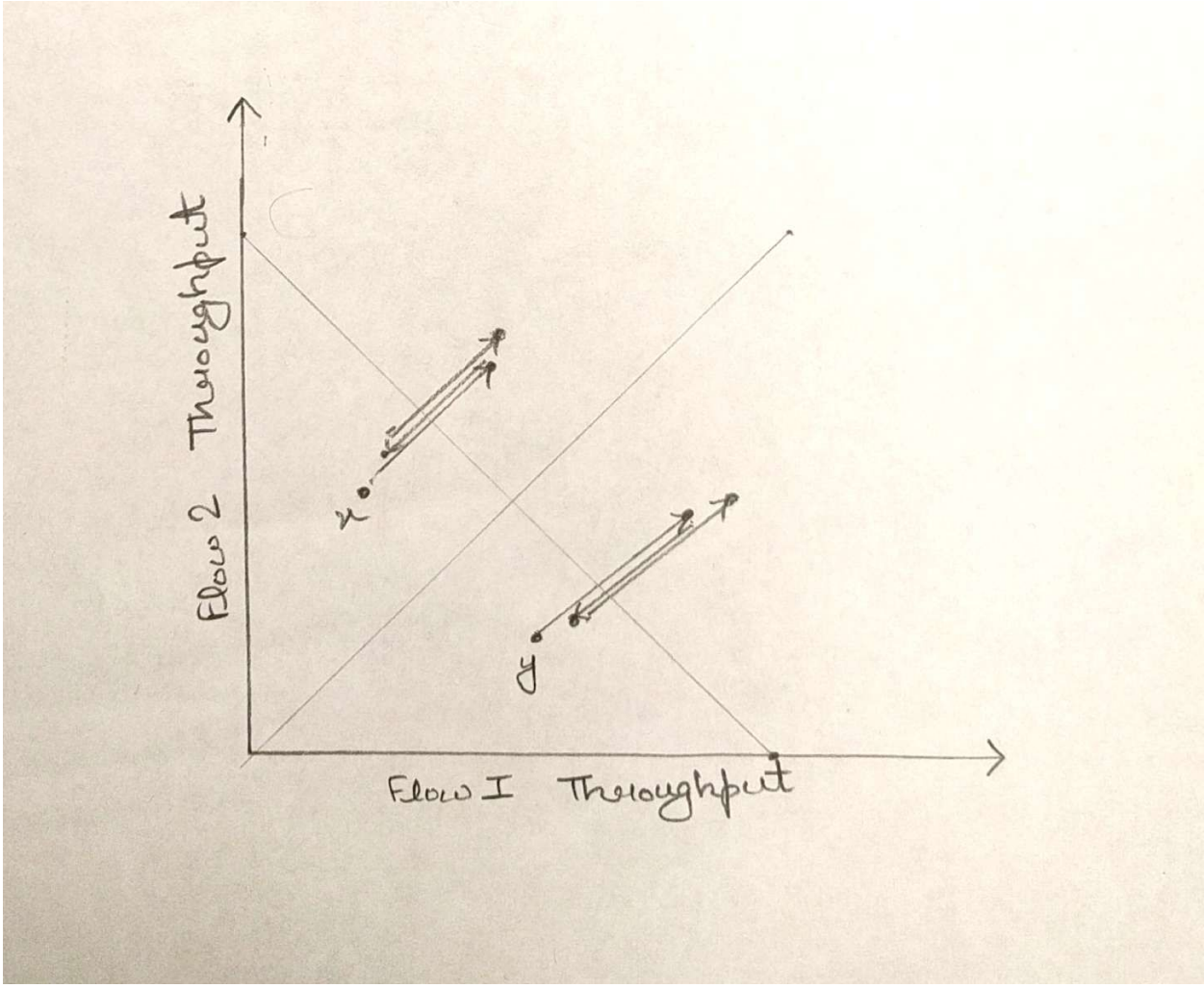
Multiplicative Increase and Multiplicative Decrease :

1.) Here we increase the congestion window size by a factor lets say a and decrease it by a factor b. As shown in image both the sizes move away from x = y line as shown in figure. If a becomes equal to b, the point will keep moving on same line. Both the window will keep increasing their window size in multiplicative manner and on congestion they also decrease multiplicatively and does not converge to x = y line. Also x and y are starting point of both the flows in representation.



Additive Increase and Additive Decrease :

2.) Here we increase the congestion window size by lets say a and decrease it by b. As shown in image both the points move away from x = y line as shown in figure. Or we can say that they keep moving on same line and remain lets say parallel to fairness line. Also x and y are starting point of both the flows in representation. So it is not fair approach.



Multiplicative Increase and Additive Decrease :

3.) Here we increase the congestion window size by factor of a and decrease it by b. As shown in image both the points move away from x = y line as shown in figure. They will not remain on same line and will remain biased towards themselves because they increase by multiplying and decrease by subtraction. Also x and y are starting point of both the flows in representation. So it is not fair approach.