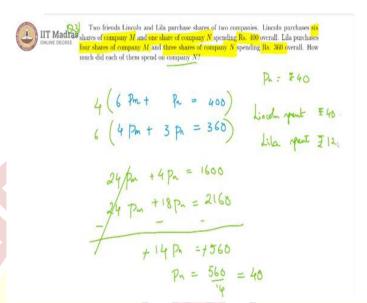


## IIT Madras ONLINE DEGREE

## Mathematics for Data Science 1 Week-03 Tutorial-03

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Now, third question, you have two friends Lincoln and Lila who purchase shares of two companies. Lincoln purchases six shares of a company M and one share of company N and overall spends 400. This can be encapsulated as if the company M's share price is  $P_m$  and for n that is  $P_n$  we can say that  $6P_m + P_n = 400$ . Then for Lila there is four shares of Company M and three shares of Company N coming to 360.

So, for Lila we have  $4P_m + 3P_n = 360$ . How much did each of them spend on n? So, we need to know what is  $P_n$  and  $3P_n$ , that is what we are interested in. To find the values of  $P_m$  and  $P_n$  we will require to solve these two linear equations. However, we only required to find  $P_n$  because the question is only pertaining to the company N's shares. So, we can work towards eliminating the  $P_m$  variable from these two equations.

So, we can multiply this equation by 4 and this one by 6 because  $4 \times 6 = 24$ ,  $6 \times 4 = 24$  and that way we should be able to subtract  $24P_m$ . So, we are going to get from the first equation  $24P_m + 4P_n = 1600$ , whereas, from the second equation we get  $24P_m + 18P_n = 2160$ . Now, if we subtract second equation from the first we get these two canceling off and here we get  $-14P_n = 560$ .

And this indicates that  $P_n = 560/14$  because we can cancel out the plus and the plus and that is equal to 40. So,  $P_n$  is 40 rupees per share. And now since Lincoln has purchased only one share, Lincoln spent only 40 rupees on company N, whereas, Lila spent three times that which is rupees 120.

