Management Accounting
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Lecture- 48
Applications of Marginal Costing- I

Welcome students, so we are learning about the say, implementation of the marginal costing technique, to answer some important questions and to take the important management decisions. In the previous class, I discussed with you the concept of cost volume profit analysis and we started doing the problems. So, first problem we did which was very simple or in a way you can call it as a difficult also because not much information was given to us, right.

Not much information was given to us, so we had to find out so many things to arrive at the certain relevant conclusions, how to answer the questions raised in that problem, right. Now, we will move to the next part, other problems will solve like this.

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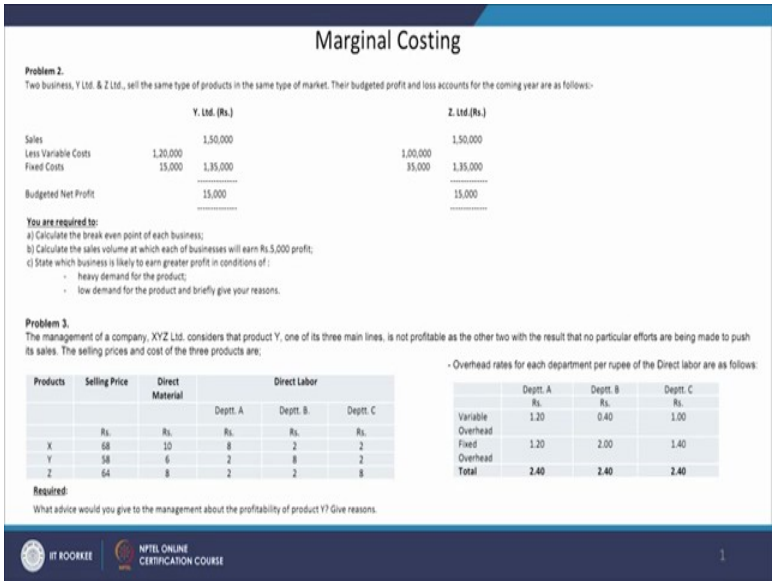

And if you go for the next problem then you will find out here is that this information is given to us, this information is given to us and if you look at this information we are given in the information like, first of all I would like to tell you that this problem will help you to understand how we can go for the planning of the profits by using the concept of marginal costing, right.

So, this is with regard to the answering the question of planning of the profit and profit plan can be done here in different manners and using the concept of marginal costing how we can do it that we are going to learn about this here. So, what information is given to us is? Two businesses Y. Ltd. and Z. Ltd., sale the same type of a product in the same type of market, sale the same type of the product in the same type of market, their budgeted profit and loss accounts for the coming year are as follows.

Their profit, budgeted profit and loss accounts for the coming year are as follows, so what is the amount of sales? We are given here the Y. Ltd. and Z. Ltd., right this information is given to us Y. Ltd. and Z. Ltd. So, it means sales are given 1,50,000 in both the businesses sales given are 1,50,000 and then we are given the variable cost, and the variable cost is 1,20,000 and 1,00,000 and then we are given the fixed cost which is 15,000 and the 35,000.

So, finally we are given here the amount of the profit also that is the budgeted profit. So, you can say that if you talk about the total cost, sales minus variable cost and the fixed cost, so it is total cost becomes 1,35,000 and sales are 1,50,000, so the profit given to us that is a budgeted profit is 15,000 in the first case, in case of the Y. Ltd. and in the second case is a Z. Ltd., here we are given the sales value same 1,50,000, variable cost is given is 1,00,000 and fixed cost is given here to us is that is say 35,000.

So, the total cost becomes here it is, if you talk about the total cost here variable cost and the fixed cost if you talk about this works out as again 1,35,000, so the budgeted profit in this case also, in this problem also we are given that is the 15,000 rupees. Now, we have to answer certain questions, from this information we have to answer certain questions, so you are required too number one, calculate the breakeven point for each business, calculate the breakeven point for each business.

Question number two is, calculate the sales volume at which each of the business will earn rupees 5,000 as profit and third question is, state which business is likely to earn greater profit in the conditions of, it is a very important question you have to carefully answer this, state which business is likely to earn greater profit in the conditions of heavy demand for the product and low demand for the product and briefly give your reasons, heavy demand for the product, low demand for the product and briefly give your reasons.

So, it means in this case when you talk about this total information given to us, we can easily answer this three questions, we can calculate the breakeven point, we can calculate the

volume of the sales at which the profit can be earned that is 5,000 rupees and the other two relevant questions which are asked in the part c of the these three questions. Now, we will try to answer first of all we will calculate the breakeven point.

For calculating the breakeven point, you have to do certain things here and breakeven point in the terms of the value of sales you have to find out the breakeven point in terms of the value of sales.

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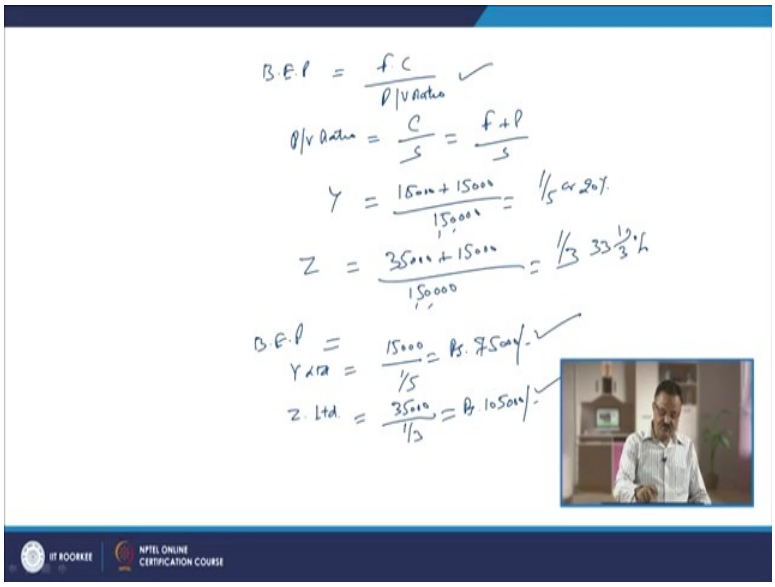

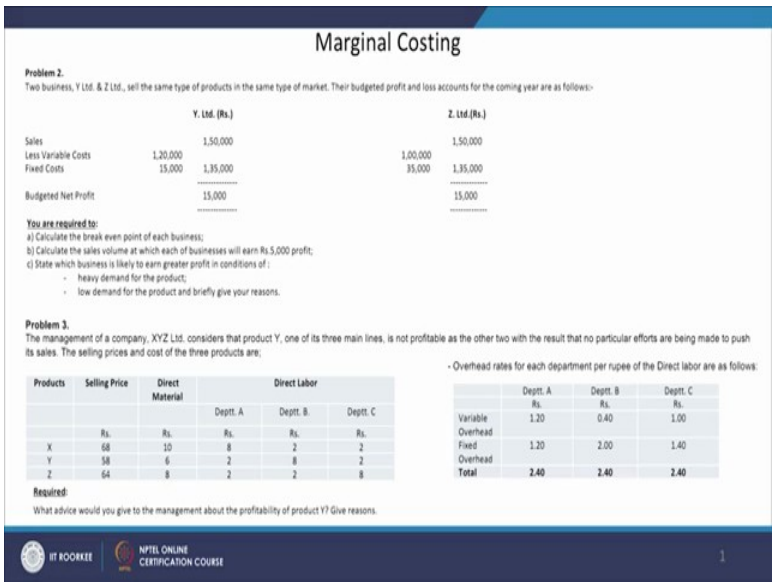

So, we will have to go for this, so what is the formula for calculating the breakeven point? Fixed cost divided by P/V ratio means many a time you need not to go for the traditional formula which I told you that fixed cost breakeven point in terms of unit I told you, fixed cost

to be divided by the selling price per unit minus the variable cost per unit or the other way is that the formula is F multiply S divided by S minus v.

If that information is given to you, the value of the sales will also be same as we are going to find out with the help of this formula, so it means breakeven point for calculating the breakeven point we are using the concept of fixed cost and the P/V ratio. So, first of all you have to calculate the P/V ratio from this information and how to calculate the P/V ratio from this information? The P/V ratio is basically profit to volume ratio is basically contribution divided by sales and the contribution is defined as fixed expenses plus profit divided by sales, fixed expenses plus profit divided by the sales.

So, in this case, I think we are given all the three things, we are given the fixed cost also which is 15,000 in the business Y and we are given the sales also that is 1,50,000 and then we are given the information about the profit also and if you look at the profit here then the profit is 15,000 rupees, right. So, it is F plus P, F is the, what is the amount of F here? Amount is of the F is say 15,000 plus, what is the profit amount? 15,000 and what is the amount of sales is? 1,50,000, right.

So, this is going to be how much? The P/V ratio is going to be 30,000 by 1,50,000, so you can say it is again in this case also 1 by 5 or 20 percent, 1 by 5 or 20 percent is the P/V ratio given in this business, this is the P/V ratio for the business Y. Now, we will calculate the P/V ratio for the business Z and the same case will be using this formula of the contribution divided by the sales or the fixed cost plus profit.

So, in this case what is the amount of sales? That is same that is 1,50,000 in case of the Z also Z. Ltd. also fixed cost is higher that is 35,000 and in the second case if you talk about, the profit part that is 15,000 rupees, right. So, now again we will calculate this, what is the fixed cost given here in the, in case of the Z. Ltd. is the 35,000, yeah fixed cost is 35,000 plus profit, profit is how much? 15,000 and what is the sales? It is 1,50,000.

So, what is the P/V ratio here? this will be 55,000 by 1,50,000, so it is going to be the 1 by 3 or you can call it as 33 and 1 by 3 percent, 33 and 1 by 3 percent is the P/V ratio we have calculated for the business Y and for the business Z, right. Now, we can easily answer the question of breakeven point, breakeven point, for how much we have to find out the breakeven point?

So, if you calculate the breakeven point for the two businesses, one is the Y. Ltd., this is going to be how much? This is going to be breakeven point is going to be how much? The formula is fixed expenses plus P/V ratio, so fixed cost is the 15,000 and the P/V ratio is how much? Divided by 1 by 5, so this amount will come up as, how much? Rupees 75,000, rupees 75,000.

Similarly, you will be able to calculate the breakeven point for Z. Ltd., for the Z. Ltd. So, if you calculate the breakeven point for Z. Ltd. you will be able to find out, what is the fixed cost here? This is 35,000 rupees, what is the P/V ratio? 1 by 3, so it will become here as rupees 1,05,000, rupees 1,05,000, so we have calculated the breakeven point, we have calculated the say the your P/V ratio.

So, means what was the question asked in the problem, calculate the breakeven point for each of the business, calculate the breakeven point for each of the business? So we have calculated the breakeven point for each of the business. Second thing is now, we have to find out, calculate the sales volume at which, calculate the sales volume at which each of the business will earn a profit of 5,000 rupees.

So, for calculating this, if you recall I have discussed with you the formula that sales volume to find out the sales volume at which a certain amount of the profit can be calculated or can we worked out.

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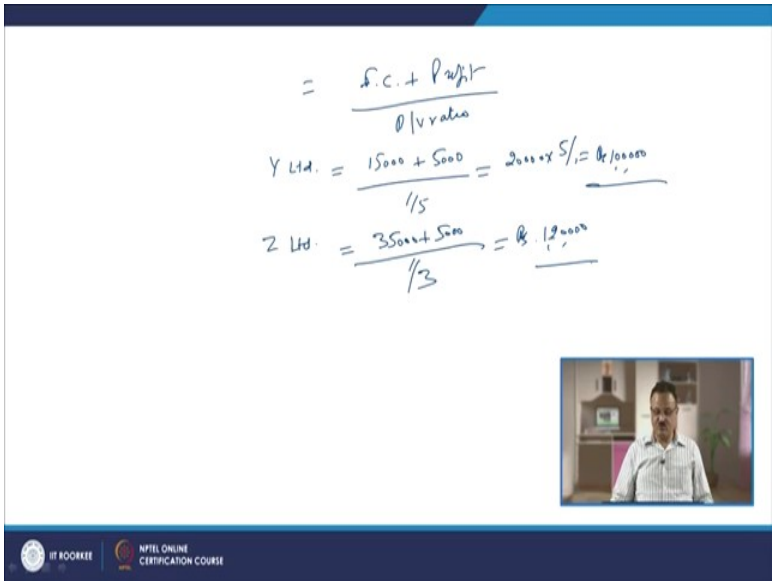

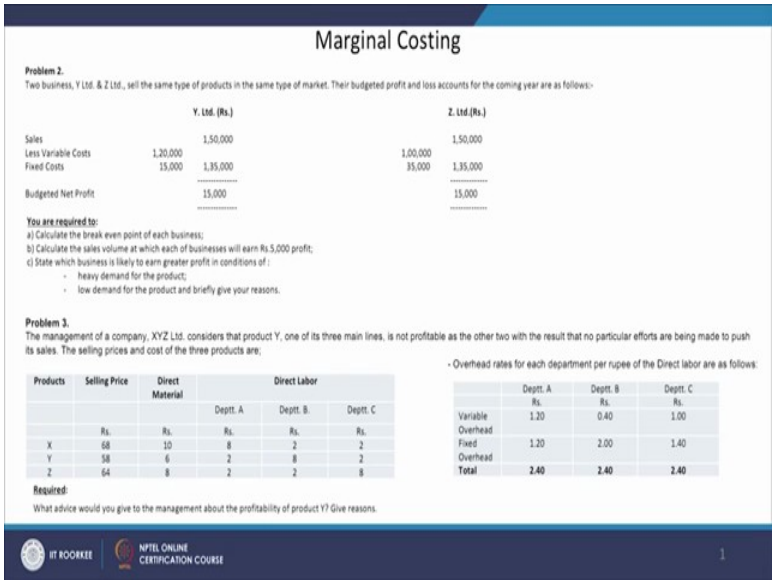

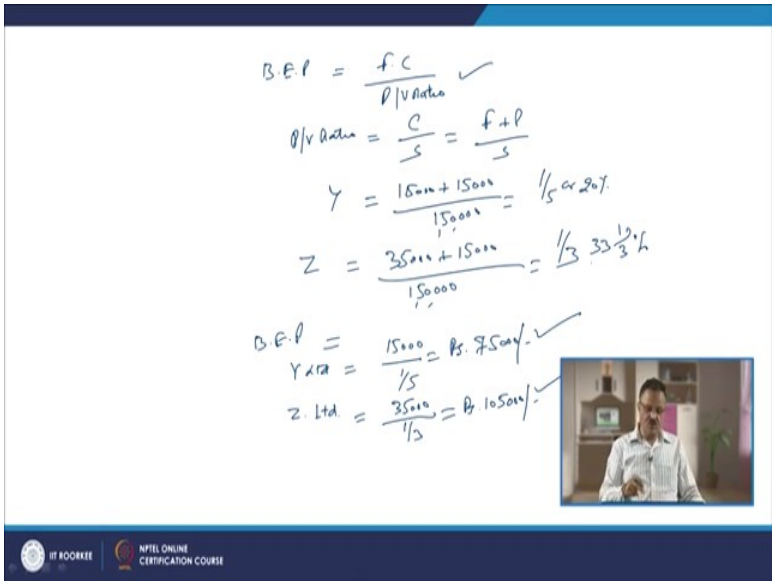

It has to be done this way that is fixed cost plus profit divided by P/V ratio, you can calculate it to at the sales volume at which the certain profit may be obtained is, can we calculated with the help of fixed cost plus profit divided by the P/V ratio, so if you go for this particular thing you can find out the here, the volume of the sales at which the profit of 5,000 can be found out, both the businesses are with you, so it is Y. Ltd., Y. Ltd.

And in Y. Ltd. what is the fixed cost? Fixed cost is given to us that is 15,000 plus, what is the profit we want to earn here? This, profit we want to earn here is, that is the 5,000 and what is the P/V ratio? That is 1 by 5, that is 1 by 5, so this becomes, how much? That is 20,000 multiplied by 5 by 1, so it is rupees 1,00,000, it is rupees 1,00,000, to earn a profit of 5,000 rupees from the business Y you have to make the sales of 1,00,000 rupees.

Now, similarly in case of the Z. Ltd., in case of the Z. Ltd. fixed cost plus profit, we have to apply the formula of the fixed cost plus profit divided by the P/V ratio and here the fixed cost given to us in the second case is, how much? 35,000 rupees plus, what is the profit we want to earn? Again we want to earn a profit of 5,000 rupees, right and what is the P/V ratio given for this business? That is 1 by 3, so finally if you solve this you will find out the value of, how much rupees? 1,20,000, 1,20,000 so this is the level of sales we have to attain to earn a desired amount of the profit.

In case of the business Y. Ltd., in case of the business Z. Ltd. and if you have 1,00,000 rupees of the sales in Y. Ltd. then the profit is going to be 5,000 rupees whereas in case of the Z. Ltd. that for having the profit of how much? Say 5,000 rupees, again the same profit we are going to have 5,000 rupees then we are going to have the sales of the minimum amount of the sales required to be done is that is the 1,20,000 rupees.

Now, we have to answer third question and third question is state which business is likely to earn greater profit in the conditions of heavy demand for the product and low demand for the product and briefly explain, briefly give your reasons, briefly give your reasons. So, in this case before that I will ask one more question here, answer one more question here that for example, we talk about the Y. Ltd. to earn a profit of 5,000 rupees in the Y. Ltd. by just making a sales of 1,00,000 rupees we are earning the profit whereas for earning the same amount of the profit in Z. Ltd. we have to go up to the sales level of 1,20,000 rupees, why it could be possible? How it could be possible?

In one case it is 1,00,000 and in another case it is 1,20,000 because when you calculate the P/V ratio, P/V ratio in the case of business Y 20 percent and P/V ratio in the case of the Z. Ltd. is 33 percent, right and why? This ratio is different because largely it is affected by the fixed cost, largely it is affected by the fixed cost. If you look at the fixed cost, fixed cost in the business one, that the business Y is just 15,000 and fixed cost in the business Z is 35,000 rupees.

So, because of that reason the sales amount required to earn a profit of rupees (1,20,000 rupees) 5,000 rupees you have to have the sales of 1,20,000 rupees. Same as a case you can verify here with the help of the breakeven point because in case of the Y. Ltd. we reach at the breakeven point just by selling worth rupees 75,000, in case of the Z. Ltd. to earn reach out the breakeven point you have to sell minimum a say value of the sales is 1,05,000, right.

So, it means if you talk about these things, these differences come up in the breakeven point because of the very high fixed cost in the Z. Ltd. but you see one more indication here comes up that I will discuss with you after answering the these two questions. So, first question is, which business is going to earn the profit in case of heavy demand for the product and if you talk about the heavy demand for the product, it means question is very simple.

The product which has high profit to volume ratio is going to earn the higher amount of the profits, (profit) product which is going to have the higher profit to volume ratio is going to earn the higher amount of the profit because demand is very high, right. So, initially it will take time because of the heavy fixed cost, it will take time to reach at the breakeven point but once you cross the breakeven point after that the level of the profit will be going very high.

So, in case of the heavy demand, if the demand is means sufficiently large in the market you can even afford to go for the heavy fixed expenses because you are going to recover it because very quickly we are going to reach at the breakeven point and after that whatever the sales we make in the market and the sales are very going to be very high. So, it means you are able to means earn a higher amount of the profits.

So, the P/V ratio, P/V ratio is a indicator of the potential profitability of any product or any project. In the project product Z we have seen P/V ratio is 33.33 percent, it means one third is the, of the sales value is the profit. So, it means if you cross the breakeven point which is a major problem in the business Z, if you cross the breakeven point after that whatever the amount of the sales you make you are going to earn a large amount of the profit and what do we mean here, why? That margin of safety is quite high in case of the project Z if there is a heavy demand in the market.

So, you have to answer this question by establishing a relationship profit to volume, right P/V ratio. Second question is, that in case of the what is the question is that, in case of the low demand which product is going to means we beneficial, that is a question that in case of the low demand which product is likely to earn the more amount of the profits? So, this question you have to answer but taking into account the breakeven point, by taking into account the breakeven point and if you take the breakeven point because what is the breakeven point?

First of all you have to reach at the breakeven point to start earning the profits and in case of the low demand, we know the demand is not going to be very high, so in case of the low demand, the business which will reach at the breakeven point at the earliest possible time that

is going to earn the higher amount of the profits because in case of the Y. Ltd. your breakeven point is 75,000 rupees of the sales, in case of the Z. Ltd. we are reaching at the breakeven at you can call it as by selling 1,05,000 rupees of the sales.

So, for example, if the total demand in the market is worth rupees say for 1,00,000 rupees, right so which way in it is profitable? Business or the product Y is profitable, business Y is profitable and not the Z one, right. If you talk about this, this is going to be the business Y is going to be more profitable because total sales are going to be 1,00,000 rupees and your breakeven point you are reaching is just after 75,000 rupees, so after that next 25,000 rupees of the sales you make you are going to earn the profit but that is not going to happen in case of the second business that is the Z. Ltd.

In the Z. Ltd., first you have to reach at the breakeven point and breakeven point comes at 1,05,000. So, it means the business will be in the lost if the amount of the demand is not very high, we are in the state of loss if the amount of demand is not very high but other way around if the demand is very high in the market then, okay it is fine, that you are taking time to reach at the breakeven point but since the P/V ratio is very high, profit to volume ratio is very high, so Z. Ltd. has a larger potential to earn more profits in the situation of heavy demand and Y. Ltd. has the potential of earning more profits in the situation of low demand.

So, this way you can answers the questions with regard to the profit planning and you can evaluate the different types of the products, you can evaluate the different types of the businesses, you can evaluate the different types of the other say outcomes, so profit can be planned there how much profit you want to earn that can easily be found out with the help of this concept of the marginal costing, right.

Now, we talk about the one more problem here, if the time permits, we will be talking about the third problem here and if you see here the third problem which is given to us, it is very interesting problem here, evaluation of the performance, evaluation of the performance. First I will discuss with you the question and then I will say solve it here, so evaluation of the performance.

You are given here that the information, the management of a company considers that product Y one of the three main lines is not profitable, one of the three main lines is not profitable as the other two with the result that no particular efforts are been made to push it is a sales. You are given the product, three products are given to us X, Y and Z, right and

management is of the view that as far as the X and Z are concerned, they are more profitable but the Y is not that much profitable, so whatever the sales is this product is making in the market, in the normal routine that is enough but no special efforts are going to be made to push the sales of this product.

The selling price and the cost of the three products are given to us, the selling price and cost of these products are given to us, so if you look at the total information given to us here is, this information given to us here is that is the information with regard to the three things, selling price we are given, direct material cost we are given, direct labour cost we are given. So, here the labour is, this product has to be processed in the three different departments A, B and C, department A, department B and department C.

It has to be processed in the three different departments, so labour is given to us, department wise and then we are given the overhead rates for each department per rupee of the direct labour as follows. So, in relation to the now you see, we are going to calculate the overheads in relation to the labour per rupee of the labour.

For example, now what is the labour? In case of the product X, 8 rupees labour we are paying and in case of the product X and department A, we are paying the labour of, how much? 8 rupees and what is the variable cost we are going to have here? That is the in the department A, overhead rates for each department per rupee of the direct labour are as follows. So, it is going to be multiplied by 1.20, so it means here the overhead cost for the department A in the product X will be how much? 9.6, so that maybe have to calculate it.

So, you are given here the selling price, you are given here the material cost, you are given here as the direct labour cost and you are given here as the overheads information in the different departments or about the different departments that is department A, B and C and then we have to try to find out, we have to agree or disagree with the view of the management whether the product Y is more profitable or not more profitable and what is special effort should be made to make it more profitable, so or whether the actually should we made to make it profitable or not.

So, if you look at this means if you make a cursory analysis of this total information. The management maybe off the view, why this product is not adding too much in the profit and no efforts are being made to push it is sales because if you look at it with the naked eyes without doing any kind of analysis of this information, so we are very clear here that selling

price for the product X is 68, selling price for the product Y is 58 rupees per unit and selling price for the product Z is 64 rupees per unit.

So, because selling price is more in case of X and Z that is 68 and 64 as compare to 58 in case of the product Y. So, they are saying that it is going to be less profitable whereas if you talk about the material cost, it is rupees how much? It is rupees somewhere you can call it as 10 rupees is a material cost and then labour cost is going to be how much? This labour cost is going to be 12 rupees total 8 plus 2 plus 2 and similarly if you calculate here the variable overheads, so that total amount will be worked out.

So, maybe the management is off the view that selling price less in case of the product Y, so they are not making any special efforts to push it is sales. So, we will have to analyze it, you cannot simply agree as a student of management accounting and the marginal costing because you now the technique of marginal costing, so we you have to evaluate it. So, for evaluating it, what we have to do here is?

From this information, we have to calculate two things first thing we have to calculate the contribution of these three individual products (A, B) and X, Y and Z then what is the contribution towards the profit of the firm by these three respective products and on the basis of that contribution, we will have to calculate the P/V ratio, profit to volume ratio and on the basis of the P/V ratio, profit to volume ratio.

You can conclude finally whether the product Y is less profitable or it should be stopped, no special efforts should be made to strengthen it is sale or to push it is sales whether we are doing the right thing or not because ultimately it is a P/V ratio which is a very good indicator of the potential profitability of the any product. So, if the P/V ratio comes up very high, in case of any of these three products then certainly we should means make the efforts too to increase the sales of that product because if you take the level of the sales of that particular level then certainly it is going to add up more in terms of the profit as compare to the other products.

So, this total analysis, the contribution calculation and the calculation of the P/V ratio and then taking the final decision about the these three products X, Y and Z we will discuss in the next class. Thank you very much!