Management Accounting
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Lecture 35: Material Variances - IV

Welcome students. So we are in the process of learning about the calculation of material variances and the till the last class we were learning about that how to calculate different variances and the problem which we are doing now in which part of the problem I did in the previous class and remaining part of the problem I will discuss now.

We are calculating the variances is of a problem which I can say comprehensive problem, dealing with different issues with regard to the material variances. Here we have address the problem of the wastages also here we have address the problem of say different weights also then the standard weight and actual weight of the mix is different and some other related issues.

So if you do this problem or understand this problem carefully and clearly I think material variances will be clear to a larger extent. So in the previous class I started means solve this problem and we calculated, we learned that how to calculate the material cost variance in this kind of situation when we are given the same problem of the wastages, we are giving the problem of adjusting the opening and closing stock, we are not given the price of the opening stock so which price we have to accept or we have to take it further for taking the necessary action.

All these things we have to deal with the, we are learning about, so in the last class I discuss some of these problems and we calculated first variance that was a material cost variance and we found that material cost variance is the 286.25 which is favorable, right.

So material cost, this variance means the material cost, which was expected to be there, the standard cost and the actual cost, which we have actually incurred, after going for the production there is a difference and we have found that the actual cost has come down by 286.25 rupees, so it is a favorable variance, right. It is a positive variance so again a reiterate that variance is a variance, whether positive or negative, you have to look for the reasons in both the cases, right.

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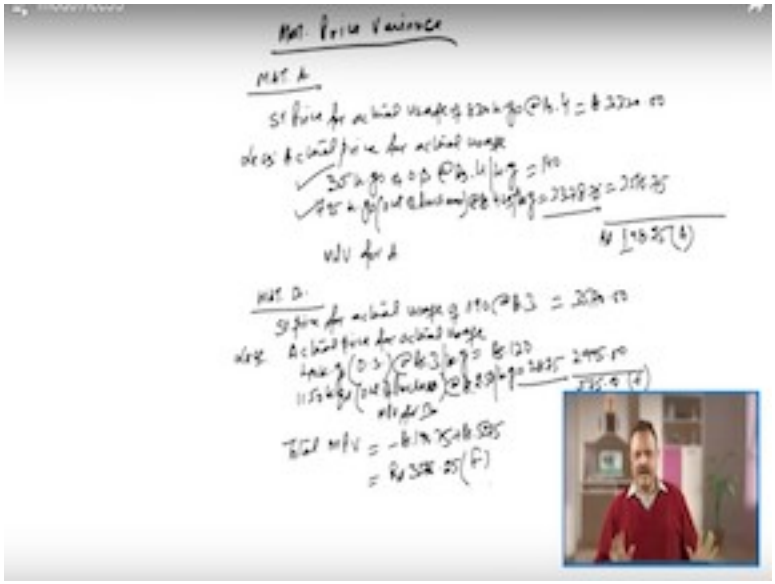

So before we go ahead with the reasons and other things, lets learn about how to calculate the other variances in this regard and the next variance, which I will be doing here that is the material price variance, right. Material price variance, and in the material price variance I have already told you that what is the process? And what is the formula? Here, for calculating the material price variance.

Now there are the two important things for the cost, in the cost part we take two important things. Cost is basically the function of two things one is the price and second is the quantity, right. So when we calculate the cost variance we take them together, we multiply the quantity with the price in case of both standard and actual and then we calculate the variance between the standard cost of material and the actual cost of material.

In this case now we will further dissect this material cost variance into the two further variances, first variance is the material price variance and the second variance is the material usage variance or the material quantity variance.

Now after knowing about that the material cost variance is 286.25 favorable, how this has come up? We will now try to find out, whether this was because of the price which we paid for buying the material, meaning thereby that the standard price was more but actual price we paid per unit of purchasing a material was less or what was the reason that in terms of quality anything was possible or anything has happened

that the standard quantity expected to be used for the one unit of the finished goods or the finished output was more as compared to the actual quantity we used.

So where is the problem? And why this variance has become favorable? There is a material cost variance, so we will dissect it into 2 further variances; material price variance and the material usage variance and then try to find out the reason.

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So we will calculate now the price variance material price variance but see they are given here the two same products, if you look at this sheet we are given the two products here and its two products are like, so when you go for these two products you can say that we have this problem with us and these two products when we are talking about is that if you take it further we will have to see here that this is the problem given to us and here we have the product material is this is a material input A and material input B to find out to the finished unit.

So it means how you have to calculate the variances, price variance is in this case, cost we calculated together, but in case of price we will be calculating it for the product A, there is some material A and the material B and then we will club these two variance and try to find what is exactly the material price variance.

So now we will calculate the material price variance and we will calculate the material variance for the first for the material A. This is a material A, so when you take this material A here, we will have to calculate it material price variance, so it

means what is the standard price? What is the formula for that? If you recall the formula for calculating the material price variance, the formula is something like, which we take for calculating this, this variance, this formula is basically that is the standard quantity into standard price per unit minus actual price per unit, right.

So in this case now we will have to deal it differently because that direct information is not given in this case to us, so we will have to calculate price variance little differently but ultimately the process will, at the end will become same so it means in this case will have to calculate the standard price because the basically difference between the standard price and the actual price and multiplied by the actual quantity.

So outside the bracket, it is the actual quantity inside the bracket is standard price and actual price per unit. So now we are taking it for the material A, standard price for actual usage, actual usage of 830 kg, 830 kgs at the rate of rupees, at the rate of rupees 4, what is the standard price? Four, standard price for actual usage of 830 kg at the rate of rupees four is going to be how much? Total, means the price of the material is going to be how much? That is the, means finally it will be the output, so it is going to be how much? That is rupees 33.3320.

If this works out as standard price for the actual usage. What is the function in the formula? Actual usage into standard price minus actual price so we are doing almost the same thing here standard price for the actual usage of 830 kgs of rupees at 30 kg at the rate of 4 is rupees 3320 is going to the final amount and less, less actual a price for actual usage actual price for actual usage.

So in this case, actual price for actual usage, so what is the actual price for actual usage here? You have to again bifurcate into two part; 1st was the 35 kgs that is the opening stock so number one is 35 kg of opening stock at rupees, opening stock at rupees 4 per kg, how much will let come out as this will work out, as the final amount will work 140 right and the second thing here is that is the remaining material; how much? That is 795 kg, 795 kgs and I will put it in the bracket here out of purchases out of purchases at the rate of rupees, at the rate of rupees 4.25 per kg, how much? It works out, this will work out at 795 kgs out of purchases at rupees 4.25 per kg and this will work out as how much? 3378.75.

So total will become how much? If you take the total of this, this will work out as, ultimately we have done it earlier also, this total of these two will be something like that 3518.75 so, finally you can calculate the material price variance, we will calculate the material price variance MPV for A will be how much? Material price variance for, MPV for A will be how much? This amount will come out as 198.75.

So you can call it as rupees 198.75 and this will come up as adverse, this is the unfavorable or adverse, so in case of the first we got an idea or the information helps us to understand that in case of the material A, input A, we have paid more actual price for buying the material as against the standard price so here this product has not cause, this input has not cause any favorable variance for the cost.

Now you calculate like this for the material B, material B here we take the material B, so if you take the material B here, so what will be? Again will have to write here standard price for actual usage, standard price for actual usage of 1190 means in case of the B, standard price for actual usage of 1190 at the rate of rupees 3. Works out as how much? This works out as 3570, standard price for actual usage of 1190 kg at the rate of rupees rupees 3 that is 3570 and now we have to calculate the less, less actual price for actual usage, actual price for actual usage, now again you have to calculate, as we calculated in this case, we will have to calculate in this case also, 40 kgs, I will put it in the bracket opening stock.

We had the opening stock of the 40 kgs opening stock at rupees 3 per kg, at rupees 3 per kg, this works out to how much rupees? 120. 40 into 3 is 120 rupees and 1150 kgs, 1150 kgs out of purchases, 1150 kgs out of the purchase at rupees 2.5 per kg, this will work out as how much? It will be 1150 into 2.5 this will workout as how much 2875.

So these two figures we will take together here and the final value will come up here as that is the standard price for actual usages 3570 and the actual price for the actual usage is going to how much? Sum of these two will be 2995, 2995 so finally the material price variance is you calculate this material price variance for MPV for B is how much 575, 575 but this variance has become favorable, so got an idea, we had two inputs A and B because we got the favorable variance, which was the material cost variance.

If it is the favorable variance meaning there by that standard cost was more actual cost has come down so it means the variance has become favorable by 286, then we further dissected and try to enquire about it that whether it has been possible, favorable material cost variance because of the material price or because of the material usage.

While we calculated the material price variance we found out that in case of the first input, that is the input A, we found out that the variance is 198.7 it is the adverse cost means this product has not caused any favorable cost variance.

Then we look at the product B and in case of the product B, calculated the MPV we have found out that this variance is favorable and why a huge amount of 575 rupees so it means if you calculate now the final variance if you calculate now the final variance you will come to know here that the final variance will be becoming something favorable and this is the one reason that now you try to find out total material price variance, total material price variance will be how much?

That will be something like this, minus rupees 198.75 plus rupees 575 this will become how much? This will become as this is the negative minus 198.75 plus rupees 575, this will become finally, this variance will be how much? Rupees 376.25 and finally it is going to be favorable.

So it means price part has not played any role in making the variances, if you talk about the price part of the product B, it has not played any role but in case of the A it was a negative variance but if B was a favorable variance so you can say to some extent the price, material price variance has played a role to make or to get the material cost variance favorable, because we got it this huge amount that is 376.25 favorable variance that is a material price variance.

Now material cost variance in how much? 286. It means there is something fishy about the material usage variance. Usage variance may become negative. If you calculate the material quantity variance or if you calculate the material usage variance you will find out that it will be negative, so that 376 minus the negative variance of the material usage finally the material cost variance will become something, which is called as 286 favorable.

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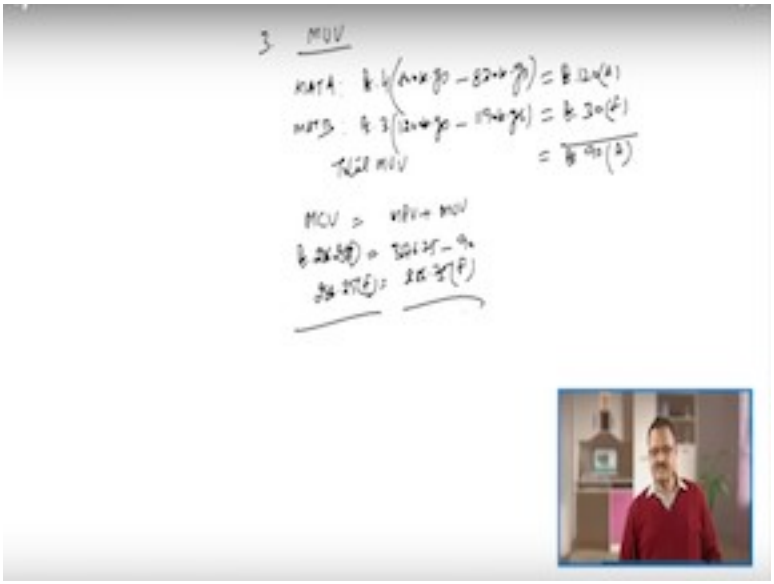

So let us calculate now the material usage variances and then we will have to make the final decision in this case now calculate the third variance which is called as the material usage variance or you call it as a material, MUV, material usage variance.

In the material usage variance what is the formula, recall the formula first. Formula is standard price per kg into standard quantity minus actual quantity. So now the price will come out, the variance which we want to calculate that to go inside the bracket and the variance other factor will be outside it means in case of the material price variance price per kg was inside the bracket and in case of the material usage variance quantity or the usage is going to be inside the bracket.

So simple, you can remember these formula like this, so now we will calculate the first one for the product A material usage variance if you have to calculate this for the material A or the input A, material A if you take this variance, it will be something like rupees 4, what is the formula? Standard price per kg into standard quantity minus actual quantity.

So it means in this case if you calculate for the material A what is standard price? 4 and what is the standard quantity? 800 kgs. 800 kgs minus actual we have use is 830 kgs. 830 kgs so it means what is the material usage variance for A? This is rupees 120 and finally it is adverse. 120 this is adverse and then it is so material B will be what? So material B will be rupees 3 into standard quantity is how much? 1200 kg and actual quantity we have used is 1190 kgs.

So the variance has become how much this is going to be? 10 and into 3, it is rupees 30 and this is going to be, this 30 is going to be favorable. So you can find out as total MUV is how much? Rupees 90 adverse, rupees 90 adverse. So now you got the real answer that what is this, so variance what is this variance and how we have to calculate it so material usage variance is 90.

So now, if you try to find out that what is this variance total, if you take this variance and if you apply the test here for the material cost variance you apply the test here, for example MCB is equal to MPB plus MUV. So what is the material cost variance if you take this, this is going to be 286.25 favorable and what is the material price variance if you take the material price variance in the previous sheet what was the total? That was 376.25; 376.252 this was the favorable variance. 376, ya this is the favorable variance.

This is going to be favorable variance so if you take this 376.25 minus the material usage variance that has become 90 adverse so we are subtracting it and both the sides are 286.25 favorable and this is 286.25 favorable. So both these variances are tally with each other so you can assume that whatever the variance we have calculated, they are correct variance and there is no doubt about the correctness of calculating the variances.

So when you miss, you dissect the material cost variance into two component, material price variance and the material usage variance you come to know who is the culprit in increasing the cost. If the variance is unfavorable and who has contributed in controlling the cost in the variances favorable.

Two only things are, means the two functions are, one is the contributed toward the cost is the price and second contributed to the, this cost is the usage. So whether we have paid more price as against the standard or we have used more quantity as against the standard in both the case this is we have to investigate and we have to verify, try to find out why this variances become favorable or unfavorable? Largely in case of the unfavorable variance identifying the factor causing that negative variance is most important.

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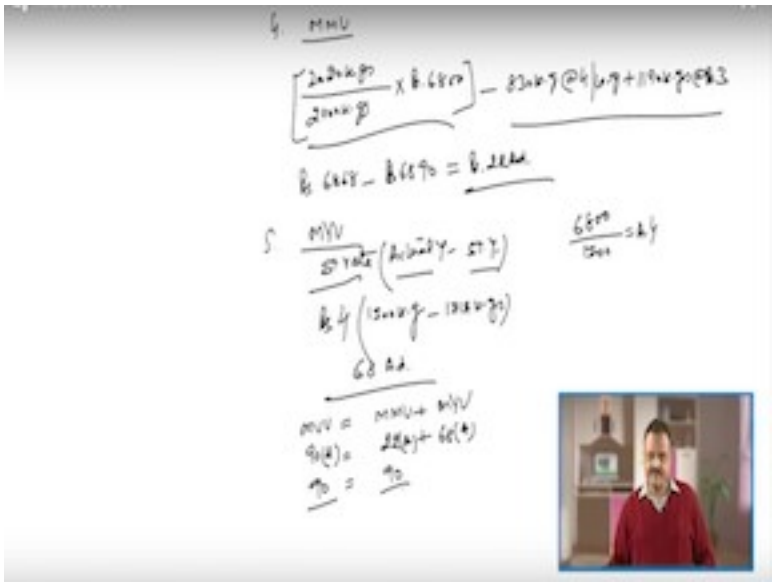


Standard Costing

Problem 4.

Vinayak Ltd. Produces an article by blending two basic raw materials. It operates at standard costing system and the following standards have been set for raw materials:

Materials	Standard Mix	Standard price per kg.
A	40%	Rs 4.00
B	60%	Rs 3.00

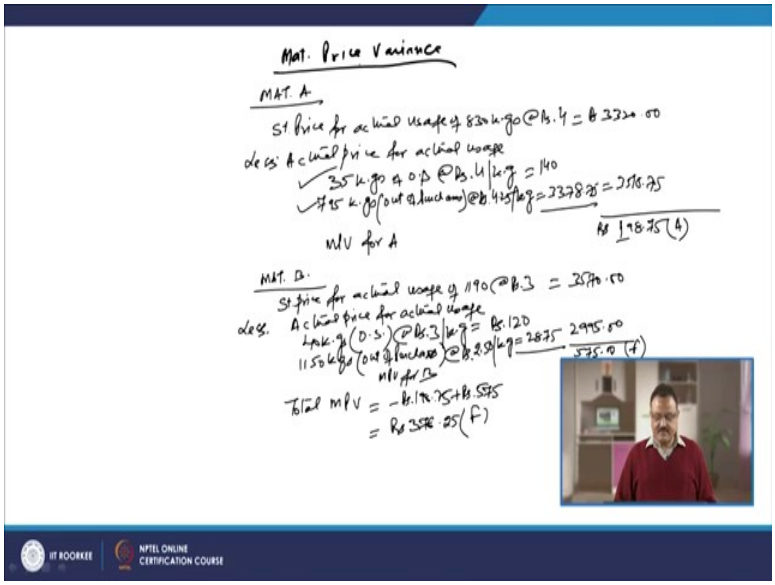
The standard loss in processing is 15%. During December 2018, the company produces 1700 Kgs. of finished output. The position of stocks and the purchases for the month of December 2018 are as under:

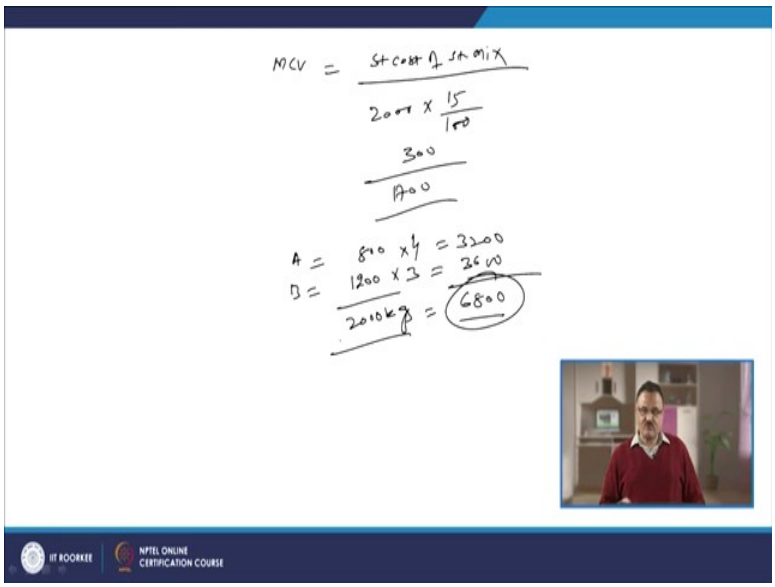
Materials	Stock as on Dec.01, 2018 (kgs.)	Stock as on Dec.31, 2018 (kgs.)	Purchases during Dec. 2018 (Kgs.)	Cost (Rs.)
A	35	05	800	3,400
B	40	50	1200	3,000

Required:

Calculate the following variances:

(i) Material cost variance
(ii) Material price variance
(iii) Material Usage variance
(iv) Material Mix variance
(v) Material Yield variance





Now if you go for the next variance and will calculate that variance which is called as material mix variance, material mix variance, this a fourth variance, MMV, so if you go for the material mix variance if you try to find out the material mix variance.

Now you will find out that two weights are different, two weights are different, standard weight is input weight, standard weight is 2000 kgs, actual input we have given is 2020 kg, actual output we have given is the 2020 kg, you can total up, we have calculated that material and if you see that, the total, if the opening stock and the purchases if you adjust so it works out as 2020 kg, the actual material we have used and the standard was 2000 kgs, that's why we were given in the case itself, in the

problem itself, that this is the 40 percent of A, 60 percent of B and you have to find out that total input, when the output is 1700 kg by adjusting the wastage of 15 percent.

So you could find out that the output is 1700 kg and the wastage is 15 percent it means input must be total of the two 40 and 60, a sum of two will become as 2000, so we treat like that, but actually when we have gone for this totally usage you go to the previous sheet here you will find here that if you total it up you will be come as how much? 795 plus 35.

35 was the opening stock 795 was the material used from the purchase so this works out and how much? 830 and in this case if you talk about this we have used here in this cases, this works out as 1150 and out of this 1150 was from the purchases and 40 was used as opening stock so this becomes as the 1190 so 1190 and then you call it as the total amount which we have used for this is a 830.

So whatever the total amount their use this 2020 kg so it means two weights are different so if the two weights are different, when the standard weight of the mix is different from the actual weight of the mix, which formula will be applied here, the third case formula will be applied here, that is the total weight of actual mix divided by the total weight of standard mix into standard cost of standard mix minus standard cost of the actual mix.

So this is a formula will be using, if you use that formula so what is the total weight of actual mix? This is 2020 kg and what was the standard weight? The standard total weight of the standard mix was how much? 2000 kg. And now what is a standard cost of standard mix, we have already calculated and that works out as rupees 6800 so you put it in the bracket minus standard cost of the actual mix.

Now we have to calculate the standard cost of actual mix and in both the cases it is different. So in the first case, in the case of the product A,B, use how much 830 kgs at the rate of rupees 4 per kg plus the second component is what? Second component is the 1190 kgs at the rate of rupees 3. At the rate of rupees 3 per kg, so it is clear it is per kg.

If you calculate the total amount, if you work it out, if you, if you solve this part and if you solve this part you will get two figures here that is rupees 6868 minus rupees 6890. 6868 minus rupees 6890 so it will be something like this this amount will be how much this will be 6868 minus 6990 is rupees 22 adverse, this will be 22 adverse.

So this variance has again material mix variance has also come up as negative variance that is 22 adverse and lastly we calculate the fifth variance and that variance is called as the material yield variance, this variance is called as material yield variance, so in this case of the material yield variance now you have to apply the formula here.

What is the formula here? Formula here is standard rate I write the formula so that you can easily recall it, standard rate into actual yield minus standard yield, right.

So now you have to find out the standard rate and then the standard, actual yield minus standard yield so if you have to calculate this you will have to apply the standard rate first. What is a standard rate? I say it is rupees 4, how it is rupees 4? What is the standard cost we have already calculated in the previous sheets, standard cost of that material we had calculated was, if it is available here with us then in this case the total amount will come out as, we have a calculated here if you see this that is the standard output was standard cost of standard mix divided by the total standard quantity.

So what was the standard cost of standard mix, standard cost of standard mix is going to be or which we have already calculated is how much? That is 68, I will write it here, separately, 68 this is the total amount and what is the finally? You can call it as the next standard output, standard rate is the standard cost, total standard cost divided by the net standard output.

So net standard output we calculate how? By adjusting for the wastages, right. So it means what is the standard cost of standard mix? it is the 6800, we have already calculated and the net standard output, net standard output is how much? Total we have given is 2000 kgs of input, so after adjusting the wastages of the 15 percent this was expected to be 1700 kg, so it means standard rate is rupees 4.

This is 4 and now we take here as the actual yield, now what is actual yield? Actual yield now what is actual yield given to us and actual yield is let us go back to the case and try to find out what is actual yield?

In this year in this month of the year 2002 the company produce 1700 kgs of output final output. 1700 kg of the final output, so it is actual, 1700 kgs was the actual yield and what was the standard yield? Expected yield you can call it as actual yield into minus expected yield so what was the standard yield? If you call it here as 1717 kgs. 1717 kgs, now how I have calculated this? This 1717 kg it is in proportion to the input given.

What was the input given here? Input given here is 2020, it is not 2000, we have given the actual input of 2020 by giving input of 2000 kg is the output is 1700 kg, so by giving input of 2020 kg what is the standard yield? That is 1717 kgs.

So if you talk about this you can say that this is the adverse variance, this is the negative variance and if you take this variance here as this will work out as this is the difference of 17 so it means 4 into 17 is yield variance if you calculate here 68 adverse, this is the 68 adverse.

Now you have to apply the check here, if you apply the check here you can easily find out that what is a check to be applied here and for this case we have applied the first check that the material cost variance is equal to the material price and usage variance so we put both the sides, both the component, we found out that it is 286.25 in both the cases.

Now if you want to apply the check for these material mix and material yield variance so the second check here is that the material usage variance has to be, material usage variance has to be equal to the material mix variance plus material yield variance, right.

So material mix variance is how much, if you calculate the material usage variance, what was the material usage variance with us, 90 adverse and what is the material mix variance, material mix variance we have worked out here is 22 adverse, and this is something like 68 adverse.

So how much it comes up as 90 is equal to 90, if you take these two sides 90 is equal to 90 both are adverse and it means your variance is which you are calculated here is they are the correctly calculate variance, so it means our variances are correct, now after calculating these different variances all 5 variances we have to find out the reasons that why these variances are may be favorable or unfavorable?

It means variance itself is bad, variance should not be there, variance itself is bad so we have to find out the reasons and here, I will discuss with you in the next class that how to analyze the reasons for finding out these variance and how to take care of these reasons? These causes so that next time these variance do not occur, do not appear. So all this means the reasons for that and how to analyze those reasons I will discuss with you in the next class. Thank you very much.