

MARGINAL COSTING**STATEMENT OF PROFIT**

Particulars	Amount	
Sales		***
Less:- Variable cost		***
	Contribution	***
Less:- Fixed cost		***
	Profit	***

1. Sales = Total cost + Profit = Variable cost + Fixed cost + Profit
2. Total Cost = Variable cost + Fixed cost

Variable cost = It changes directly in proportion with volume

1. Variable cost Ratio = {Variable cost / Sales} * 100
2. Sales – Variable cost = Fixed cost + Profit
3. Contribution = Sales * P/V Ratio

PROFIT VOLUME RATIO [P/V RATIO]:-

1. {Contribution / Sales} * 100
2. {Contribution per unit / Sales per unit} * 100
3. {Change in profit / Change in sales} * 100
4. {Change in contribution / Change in sales} * 100

BREAK EVEN POINT [BEP]:-

1. Fixed cost / Contribution per unit [in units]
2. Fixed cost / P/V Ratio [in value] (or) Fixed Cost * Sales value per unit
 1. (Sales – Variable cost per unit)

MARGIN OF SAFETY [MOP]

1. Actual sales – Break even sales
2. Net profit / P/V Ratio
3. Profit / Contribution per unit [In units]
3. Sales unit at Desired profit = {Fixed cost + Desired profit} / Cont. per unit
4. Sales value for Desired Profit = {Fixed cost + Desired profit} / P/V Ratio

5. At BEP Contribution = Fixed cost

$$\text{Variable cost Ratio} = \frac{\text{Change in total cost}}{\text{Change in total sales}} \times 100$$

6. Indifference Point = Point at which two Product sales result in same amount of profit

$$\begin{aligned} & \frac{\text{= Change in fixed cost}}{\text{Change in variable cost per unit}} \quad (\text{in units}) \\ & \frac{\text{= Change in fixed cost}}{\text{Change in contribution per unit}} \quad (\text{in units}) \\ & \frac{\text{= Change in Fixed cost}}{\text{Change in P/Ratio}} \quad (\text{Rs.}) \\ & \frac{\text{= Change in Fixed cost}}{\text{Change in Variable cost ratio}} \quad (\text{Rs.}) \end{aligned}$$

7. Shut down point = Point at which each of division or product can be closed

$$\frac{\text{= Maximum (or) Specific (or) Available fixed cost}}{\text{P/V Ratio (or) Contribution per unit}}$$

If sales are less than shut down point then that product is to shut down.

Note

1. When comparison of profitability of two products if P/V Ratio of one product is greater than P/V Ratio of other Product then it is more profitable.
2. In case of Indifference point if, (Sales Indifference point)
 - a. Select option with higher fixed cost (or) select option with lower fixed cost.

STANDARD COSTING**MATERIAL**

1. Material cost variance = $SP * SQ - AP * AQ$
2. Material price variance = $SP * AQ - AP * AQ$
3. Material usage variance = $SP * SQ - SP * AQ$
4. Material mix variance = $SP * RSQ - SP * AQ$
5. Material yield variance = $SP * SQ - SP * RSQ$

LABOUR

1. Labour Cost variance = $SR * ST - AR * AT$
2. Labour Rate variance = $SR * AT \text{ (paid)} - AR * AT$
3. Labour Efficiency variance = $SR * ST - SR * AT \text{ (paid)}$
4. Labour mix variance = $SR * RST - SR * AT \text{ (worked)}$
5. Labour Idle time variance = $SR * AT \text{ (worked)} - SR * AT \text{ (paid)}$

VARIABLE OVERHEADS COST VARIANCE

- Variable Overheads Cost Variance = $SR * ST - AR * AT$
- Variable Overheads Expenditure Variance = $SR * AT - AR * AT$
- Variable Overheads Efficiency Variance = $SR * ST - SR * AT$

Where,

$$SR = \text{Standard rate/hour} = \frac{\text{Budgeted variable OH}}{\text{Budgeted Hours}}$$

FIXED OVERHEADS COST VARIANCE

- Fixed Overheads Cost Variance = $SR * ST - AR * AT \text{ (paid)}$
- Fixed Overheads Budgeted Variance = $SR * BT - AR * AT \text{ (paid)}$
- Fixed Overheads Efficiency Variance = $SR * ST - SR * AT \text{ (worked)}$
- Fixed Overheads Volume Variance = $SR * ST - SR * BT$
- Fixed Overheads Capacity Variance = $SR * AT \text{ (worked)} - SR * RBT$
- Fixed Overheads Calendar Variance = $SR * RBT - SR * BT$

SALES VALUE VARIANCE

- Sales value variance = $AP * AQ - \text{Budgeted Price} * BQ$
- Sales price variance = $AP * AQ - BP * AQ$
- Sales volume variance = $BP * AQ - \text{Budgeted Price} * BQ$
- Sales mix variance = $BP * AQ - BP * \text{Budgeted mix}$
- Sales quantity variance = $BP * \text{Budgeted mix} - \text{Budgeted Price} * BQ$

Note:-

Actual margin per unit (AMPU) = Actual sale price – selling cost per unit
 Budgeted margin per unit (BMPU) = Budgeted sale price – selling price per unit

SALES MARGIN VARIANCE

Sales margin variance = AMPU*AQ – BMPU*BQ
 Sales margin price variance = AMPU*AQ – BMPU*AQ
 Sales margin volume variance = BMPU*AQ – BMPU*BQ
 Sales margin mix variance = BMPU*AQ – BMPU*Budgeted mix
 Sales margin quantity variance = BMPU*Budgeted mix – BMPU*BQ

CONTROL RATIO

Efficiency Ratio = $\frac{\text{Standard hours for actual output}}{\text{Actual hours worked}} \times 100$

Capacity Ratio = $\frac{\text{Actual Hours Worked}}{\text{Budgeted Hours}} \times 100$

Activity Ratio = $\frac{\text{Actual Hours Worked}}{\text{Budgeted Hours}} \times 100$

Verification: Activity Ratio = Efficiency * Capacity Ratio

SHORT WORDS USED IN THE FORMULAE

SC = Standard Cost,	AC = Actual Cost
SP = Standard Price,	SQ = Standard Quantity
AP = Actual Price,	AQ = Actual Quantity
AY = Actual Yield,	SY = Standard Yield
RSQ = Revised Standard Quantity,	SR = Standard Rate,
ST = Standard Time	AR = Actual Rate,
AT = Actual Time	RST = Revised Standard Time,
BP = Budgeted Price,	BQ = Budgeted Quantity
RBT = Revised Budgeted Time	BMPU = Budgeted Margin per Unit
AMPU = Actual Margin per Unit	

STANDARD COSTING**MATERIAL**

Material cost variance =	$SC - AC = (SQ \times AQ) - (AQ \times AP)$
Material price variance =	$AQ (SP - AP)$
Material usage variance =	$SP (SQ - AQ)$
Material mix variance =	$SP (RSQ - AQ)$
Material yield variance =	$(AY - SY \text{ for actual input})$ Standard material cost per unit of output
Material revised usage variance (calculated instead of material yield variance) =	$[\text{standard quantity} - \text{Revised standard for actual output quantity}] \times \text{Standard price}$

LABOUR

Labour Cost variance =	$SC - AC = (SH \times SR) - (AH \times AR)$
Labour Rate variance =	$AH (SR - AR)$
Labour Efficiency or time variance =	$SR (SH - AH)$
Labour Mix or gang composition Variance =	$SR(RSH - AH)$
Labour Idle Time Variance =	Idle hours * SR
Labour Yield Variance =	$[\text{Actual Output} - \text{Standard output for actual input}] \times \text{Standard labour cost/unit of output}$
Labour Revised Efficiency Variance (instead of LYV) =	$[\text{Standard hours for actual output} - \text{Revised standard hours}] \times \text{Standard rate}$

Notes:-

1. $LCV = LRV + LMV + ITV + LYV$
2. $LCV = LRV + LEV + ITV$
3. $LEV = LMV, LYV \text{ (or) } LREV$

OVERHEAD VARIANCE**(GENERAL FOR BOTH VARIABLE AND FIXED)**

$$\text{Standard overhead rate (per hour)} = \frac{\text{Budgeted Overheads}}{\text{Budgeted Hours}}$$

$$\text{Standard hours for actual output} = \frac{\text{Budgeted hours}}{\text{Budgeted output}} \times \text{Actual Output}$$

$$\text{Standard OH} = \text{Standard hrs for actual output} \times \text{Standard OH rate per hour}$$

$$\text{Absorbed OH} = \text{Actual hrs} \times \text{Standard OH rate per hour}$$

Budgeted OH = Budgeted hrs X Standard OH rate per hour

Actual OH = Actual hrs X Actual OH rate per hour

OH cost variance = Absorbed OH – Actual OH

VARIABLE OVERHEADS VARIANCE

Variable OH Cost Variance = Standard OH – Actual OH

Variable OH Exp. Variance = Absorbed OH – Actual Variable OH

Variable OH Efficiency Variance = Standard OH – Absorbed OH

= Standard hours for Actual output hours X Standard rate for variable OH

FIXED OVERHEADS VARIANCE

Fixed OH Cost Variance =	Standard OH – Actual OH
Fixed OH expenditure variance =	Budgeted OH – Actual OH
Fixed OH Efficiency Variance =	Standard OH (units based) – Absorbed OH (Hours based)
Fixed OH Volume Variance =	Standard OH – Budgeted OH
	[Standard hrs for – Budgeted actual output hours] X Standard rate
Fixed OH capacity variance =	Absorbed OH–Budgeted OH
Fixed OH Calendar Variance =	[Revised budgeted hrs – Budgeted hrs] X Standard rate/hrs

When there is calendar variance capacity variance is calculated as follows:-

Capacity variance = [Actual hours – Revised Budgeted hrs] X Standard rate/hour

VERIFICATION

Variable OH cost variance = Variable OH Exp Variance + Variable OH Efficiency variance

Fixed OH cost variance = Fixed OH Exp Variance + Fixed OH volume Variance

Fixed OH volume variance = Fixed OH Eff variance + Capacity variance + Calendar Vari

SALES VARIANCES**TURNOVER METHOD (OR) SALES VALUE METHOD:-**

Sales value variance = Actual Sales – Budgeted Sales

Sales price variance = [Actual Price – Standard price] X Actual quantity
= Actual sales – standard sales

Sales volume variance = [Actual-Budgeted quantity] X Standard price
= Standard sales – Budgeted sales

Sales mix variance = [Actual quantity – Revised standard quantity] * Standard Price
= Standard sales – Revised sales

Sales quantity variance = [Revised standard variance – Budgeted quantity] X Standard price
= Revised Standard sales – Budgeted sales

PROFIT METHOD

Total sales margin variance = (Actual Profit–Budgeted price)
= {Actual quantity * Actual profit p. u} – {Budgeted quantity * Standard profit p. u}

Sales margin price variance=Actual profit–Standard profit
= {Actual Profit p. u – Standard profit p. u} * Actual quantity of sales

Sales margin volume variance = Standard profit – Budgeted Profit
= {Actual quantity – Budgeted quantity} * Standard profit per unit

Sales margin mix variance = Standard profit – Revised Standard profit
= {Actual quantity – Revised standard quantity} * Standard profit per unit

Sales margin quantity variance = Revised standard profit – Budgeted profit
= {Revised standard quantity – Budgeted quantity} * Standard profit per unit

FIXED OVERHEAD VARIANCE

Standard OH = Standard hrs for actual output * Standard OH rate per hour

Absorbed OH = Actual hrs * Standard OH rate per hour

Budgeted OH = Budgeted hrs * Standard OH rate per hour

Actual OH = Actual hrs * Actual OH rate per hour

Revised Budgeted Hour = Actual Days * Budgeted Hours per day
(Expected hours for actual days worked)

When Calendar variance is asked then for capacity variance Budgeted Overhead is
(Budgeted days * Standard OH rate per day)

Revised Budgeted Hr (Budgeted hrs for actual days) = Actual days * Budgeted hrs per day

SALES VARIANCES

Sales value variance = Actual Sales – Budgeted Sales

SALES MARGIN VARIANCES

Total sales margin variance = (Actual Profit–Budgeted price)

= {Actual quantity * Actual profit per unit}- {Budgeted quantity * Standard profit per unit}

RECONCILIATION

Reconciliation statement is prepared to reconcile the actual profit with the budgeted profit

PARTICULARS	FAVORABLE	UNFAVORABLE	(RS)
Budgeted Profit :			
Add Favorable variances			
Less Unfavorable variances			
Sales Variances :			
Sales price variance			
Sales mix variance			
Sales quantity variance			
Cost variance :-			
Material :			
Cost variance			
Usage variance			
Mix variance			
Labour :			
Rate variance			
Mix variance			
Efficiency variance			
Idle time variance			
Fixed overhead variance :			
Expenditure variance			
Efficiency variance			
Fixed overhead variance :			
Expenditure variance			
Efficiency variance			
Capacity variance			
Calendar variance			