Y:	6 x (40 – 50) =	₹ 60	(unfavourable)
Total		₹ 40	(favourable)

In this case MUV is the MMV because total weight of actual mix and total weight of standard mix do not differ.

(2) *When the actual weight of mix and standard weight of mix differ* : In this case, the material mix variance is calculated by applying the following formula:

$$\text{Material mix variance} = \left[\frac{\text{Total weight of actual mix}}{\text{Total weight of std. mix}} \times \text{Std. cost of std. mix}\right] - \text{Std. cost of actual mix}$$

Example 3

From the following information, calculate material mix variance:

	Standard	Actual
Material X:	60 units @ ₹ 10 p.u.	60 units @ ₹ 11 p.u.
Material Y:	40 units @ ₹ 6 p.u.	50 units @ ₹ 5.50 p.u.
	100	110

Solution

$$\text{Material mix variance} = \left[\frac{\text{Total weight of actual mix}}{\text{Total weight of std. mix}} \times \text{Std. cost of std. mix}\right] - \text{Std. cost of actual mix}$$

Std. cost of std. mix = Std. qty x Std. price
= (60 x 10) + (40 x 6) = 600 + 240 = ₹ 840

Std. cost of actual mix = Std. price x Actual quantity
= (10 x 60) + (6 x 50) = 600 + 300 = ₹ 900

$$\text{MMV} = \left[\frac{110}{100} \times 840\right] - 900 = 924 - 900 = \text{Rs. } 24 \text{ (favourable)}$$

Thus, when the above formula is used, MMV is obtained in total.

Revised standard quantity: When standard weight of mix and actual weight of mix differ, the standard quantity may be revised in conformity with actual input. Such quantities are called revised standard quantities. Thus revised standard quantities refer to the standard proportion of each material in the total actual quantity. Standard quantity of materials is changed due to the shortage of the one type of materials. In such cases, the material mix variance is calculated by using the revised standard quantity. Revised standard quantity is calculated as follows:

$$\text{Revised Std. qty} = \text{Std. qty.} \times \frac{\text{Total weight of actual mix}}{\text{Total weight of standard mix}}$$

Material mix variance can also be calculated by using the revised standard qty. It is calculated as follows:

MMV = Std. price x (Revised Std. qty – Actual qty.) Let us take the above example.

$$\text{Revised Std. qty.} = \text{Std. qty.} \times \frac{\text{Total weight of actual mix}}{\text{Total weight of standard mix}}$$

$$\text{Revised Std. qty. of X} = 60 \times \frac{110}{100} = 66$$

$$\text{Revised std. qty. of Y} = 40 \times \frac{110}{100} = 44$$

MMV	X:	10 x (66 – 60) =	₹ 60 (favourable)
MMV	Y:	6 x (44 – 50) =	₹ 36 (unfavourable)
	Total		₹ 24 (favourable)

Thus, when MMV is calculated by using RSQ, the MMV is obtained separately for e material.

Material sub usage variance: It is that part of total material variance which arises due to difference between standard quantity for actual production and revised standard quantity. It is al called material revised usage variance. It is computed as follows:

MSUV = SP (SQ – RSQ)
MUV = MMV + MSUV
or
MMV + MYV
MYV = Material Yield Variance

Example 4

From the following particulars calculate the material usage variance, material mix variance and material sub-usage variance.

	Standard	Actual
Material A:	80 units @ ₹ 6 p.u.	90 units @ ₹ 5 p.u.
Material B:	20 units @ ₹ 12 p.u.	30 units @ ₹ 14 p.u.
	100	120

Solution

(a) Usage Variance = SP x (SQ – AQ)

A: 6 x (80 – 90) =	60 (A)
B: 12 x (20 – 30) =	120 (A)
	₹ 180 (A)