What is Material Quantity Variance?

Worksheet

Material quantity variance equals (Actual Quantity Used Standard Quantity Allowed) Standard Price. A positive result is unfavorable (more material used than standard); a negative result is favorable.

$$@text{MQV} = (@text{SQ} - @text{AQ}) @times @text{SP}$$

Questions

1. Standard quantity allowed is 750 kg, actual usage is 800 kg, standard price is $4/kg. What is the material quantity variance?

A) $200 Favorable
B) $200 Unfavorable
C) $50 Unfavorable
D) $3,200 Unfavorable

2. Which price is always used to compute material quantity variance?

A) Actual price
B) Standard price
C) Market price
D) Average price

3. A company uses less material than standard allows. This is a

A) Favorable variance
B) Unfavorable variance
C) Zero variance
D) Price variance

4. Material quantity variance isolates which factor?

A) Purchase price changes
B) Labor efficiency
C) Material usage efficiency
D) Sales volume

5. A bakery's standard allows 1,000 kg of flour for a batch at $5/kg. Actual usage was 1,050 kg. Find the material quantity variance.

6. Standard quantity allowed is 500 kg at $10/kg. Actual usage was only 480 kg.

7. A furniture maker used 2,200 board-feet of lumber at a standard price of $3/board-foot; standard usage was 2,000 board-feet.

8. Define: What is the material quantity variance formula?

9. Define: What does a positive MQV mean?

10. Define: What does a negative MQV mean?

Answer Key

1. B) $200 Unfavorable - (800750)$4 = $200; since AQ > SQ it is unfavorable.
2. B) Standard price - Standard price is held constant so the variance reflects only quantity, not price changes.
3. A) Favorable variance - Using less than standard lowers cost, which is favorable.
4. C) Material usage efficiency - It measures how efficiently material was used, separate from price.
5. AQ SQ = 1,050 1,000 = 50 kg MQV = 50 $5 = $250 Since AQ > SQ, the variance is $250 Unfavorable
6. AQ SQ = 480 500 = 20 kg MQV = 20 $10 = $200 Since AQ < SQ, the variance is $200 Favorable
7. AQ SQ = 2,200 2,000 = 200 board-feet MQV = 200 $3 = $600 Since AQ > SQ, the variance is $600 Unfavorable
8. MQV = (Actual Quantity Used Standard Quantity Allowed) Standard Price.
9. Unfavorable - more material was used than the standard allowed.
10. Favorable - less material was used than the standard allowed.