**Hypothesis Testing for Weekly Operating Cost — Explained Simply**

We want to check if the actual weekly operating costs are higher than what the theoretical model predicts.

**Step 1: Set up the hypotheses**

Null Hypothesis (H0): The average weekly cost is equal to the theoretical cost (Rs. 4000).

Alternative Hypothesis (H1): The average weekly cost is greater than the theoretical cost.

**Step 2: Calculate the test statistic**

Our sample average cost from 25 weeks is Rs. 3050.

The theoretical average cost, based on the formula 1000+5×mean units, is Rs. 4000.

The standard deviation of weekly cost is Rs. 125, so the standard error (which adjusts for the sample size) is about Rs. 25.

Using these numbers, we calculate a z-score to see how far our sample mean is from the theoretical mean in terms of standard errors.

**Step 3: Find the critical value**

For a 5% significance level and a one-sided test, the critical z-value is about 1.645. If our test statistic exceeds this, we can say the cost is significantly higher.

**Step 4: Make a decision**

The calculated z-score is around -37.8 (since 3050 is much less than 4000), which is way less than 1.645.

**Step 5: Conclusion**

Since the z-score does not exceed the critical value, we fail to reject the null hypothesis.

This means there isn’t enough evidence to say the weekly operating costs are higher than what the model predicts. In fact, the sample mean is much lower than expected.