**What Is a Parametric Test?**

A parametric test is a statistical test that assumes the data follows a known distribution (usually normal distribution) and uses that assumption to make inferences.

Parametric tests work with averages and need the data to be normal (bell-shaped), continuous, and equal in variance (spread).

**When to Use Parametric Tests:**

Your data is numeric (like satisfaction score, age, ticket price).

Your data is normally distributed.

The groups you compare have similar spread (variance).

**Common Parametric Test Types (with Travel Analogies)**

| **Test Name** | **Use Case** | **Analogy in Travel Domain** |
| --- | --- | --- |
| **t-test (independent)** | **Compare the mean of two groups** | **Like comparing average satisfaction between Business and Economy class.** |
| **t-test (paired)** | **Compare two scores from the same passengers (before/after)** | **Like comparing passenger satisfaction before and after meal service.** |
| **ANOVA** | **Compare means of 3+ groups** | **Comparing satisfaction in Economy, Economy Plus, and Business.** |
| **Pearson Correlation** | **Check if two numeric variables move together** | **See if age increases → satisfaction increases.** |
| **Linear Regression** | **Predict one variable using another** | **Predict satisfaction based on ticket price or age.** |
| **Z-test** | **Like a t-test, but for large samples** | **Comparing average wait time at two airport gates with a huge dataset.** |

**Parametric Testing Analogy (Airline Example)**

Imagine checking if Business class gives better legroom than Economy.

You measure the average seat space in each.

If the data is normally shaped (no weird outliers), you use a t-test to say:

“Yes! Business class truly has more room — and it is not just random.”

That is a parametric test in action:

It trusts the average and assumes the data is well-behaved.

**Summary:**

Parametric tests compare averages or numeric relationships when data is normal and clean.