Let's interpret the results from the Chi-squared tests for the relationships between various categorical variables and the "Category" in the Superstore Sales Dataset.

1. State vs. Category

- **Chi-squared Statistic:** 7.609
- **P-value:** 0.938
- **Degrees of Freedom:** 15

Interpretation: The Chi-squared statistic is relatively low compared to the degrees of freedom, and the p-value is significantly greater than the common alpha level of 0.05. This suggests that there is no statistically significant association between "State" and "Category." We fail to reject the null hypothesis, indicating that the distribution of categories does not vary by state.

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2. City vs. Category

- **Chi-squared Statistic:** 136.643
- **P-value:** 0.9998
- **Degrees of Freedom:** 201

Interpretation: Here, we have a very high Chi-squared statistic with an extremely high p-value. Despite the high statistic, the p-value suggests that we do not have enough evidence to conclude a significant relationship between "City" and "Category." Again, we fail to reject the null hypothesis, indicating that the distribution of categories does not significantly depend on the city.

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3. Region vs. Category

- **Chi-squared Statistic:** 2.615
- **P-value:** 0.978
- **Degrees of Freedom:** 9

Interpretation: Similar to the previous tests, the low Chi-squared statistic and high p-value indicate that there is no statistically significant relationship between "Region" and "Category." We fail to reject the null hypothesis, suggesting that categories are distributed uniformly across different regions.

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4. Ship Mode vs. Category

- **Chi-squared Statistic:** 1.939
- **P-value:** 0.9995
- **Degrees of Freedom:** 12

Interpretation: The results show a low Chi-squared statistic with a very high p-value, indicating no significant association between "Ship Mode" and "Category." We again fail to reject the null hypothesis, suggesting that the distribution of categories is independent of the shipping modes.

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5. Order Month vs. Category

- **Chi-squared Statistic:** 12.527
- **P-value:** 0.9999
- **Degrees of Freedom:** 36

Interpretation: Although the Chi-squared statistic is higher compared to the other tests, the p-value remains extremely high, indicating no significant relationship between "Order Month" and "Category." We fail to reject the null hypothesis, implying that the distribution of categories does not change across different months of orders.

Summary

Overall, none of the tests indicate a statistically significant relationship between the categorical variables (State, City, Region, Ship Mode, Order Month) and the "Category." The p-values for all tests are well above the standard alpha level of 0.05, suggesting that we do not have sufficient evidence to conclude that the distributions of categories differ based on these variables.