

1. What is the difference between a probability density function and a probability distribution function? How are the two related? Give an example.
2. What are the requirements for a continuous probability density function?
3. What is the purpose of a hypothesis test?
4. List the steps for doing a two-sample t-test.
5. Big Foods Grocery has two grocery stores located in Johnston City. One store is located on First Street and the other on Main Street and each is run by a different manager. Each manager claims that her store's layout maximizes the amounts customers will purchase on impulse. Both managers surveyed a sample of their customers and asked them how much more they spent than they had planned to, in other words, how much did they spend on impulse? The table below shows the sample data collected from the two stores. Upper-level management at Big Foods Grocery wants to know if there is a difference in the mean amounts purchased on impulse at the two stores and has hired you to perform the statistical analysis. Use R to carry out your analysis.

| First Street | Main Street |
|---------------------|--------------------|
| 15.78 | 15.19 |
| 17.73 | 18.22 |
| 10.61 | 15.38 |
| 15.79 | 15.96 |
| 14.22 | 21.92 |
| 13.82 | 12.87 |
| 13.45 | 12.47 |
| 12.86 | 13.96 |
| 10.82 | 13.79 |
| 12.85 | 13.74 |
| | 18.4 |
| | 18.57 |
| | 17.79 |
| | 10.83 |