

- d. Make the decision.
- e. Summarize the results.

Use the traditional method of hypothesis testing unless otherwise specified.

8. A study is being conducted to determine whether there is a relationship between jogging and blood pressure. A random sample of 210 subjects is selected, and they are classified as shown in the table. At $\alpha = 0.05$, test the claim that jogging and blood pressure are not related.

Jogging status	Blood pressure		
	Low	Moderate	High
Joggers	34	57	21
Nonjoggers	15	63	20

9. Is the type of pet owned dependent on annual household income? Use $\alpha = 0.05$.

Income (\$)	Type of pet			
	Dog	Cat	Bird	Horse
Under 12,500	127	139	173	95
12,500-24,999	191	197	209	203
25,000-39,999	216	215	220	218
40,000-59,999	215	212	175	231
60,000 and over	254	237	223	254

Source: *N.Y. Times Almanac*.

10. This table lists the numbers of officers and enlisted personnel for women in the military. At $\alpha = 0.05$, is there sufficient evidence to conclude that a relationship exists between rank and branch of the Armed Forces?

	Officers	Enlisted
Army	10,791	62,491
Navy	7,816	42,750
Marine Corps	932	9,525
Air Force	11,819	54,344

Source: *N.Y. Times Almanac*.

11. Is the composition of state legislatures (House of Representatives) related to the specific state? Use $\alpha = 0.05$.

	Democrats	Republicans
Pennsylvania	100	103
Ohio	39	59
West Virginia	75	25
Maryland	106	35

Source: *N.Y. Times Almanac*.

12. Is the size of the population by age related to the state that it's in? Use $\alpha = 0.05$. (Population values are in thousands.)

	Under 5	5-17	18-24	25-44	45-64	65+
Pennsylvania	721	2140	1025	3515	2702	1899
Ohio	740	2104	1065	3359	2487	1501

Source: *N.Y. Times Almanac*.

13. Some 300 men and 210 women were asked about how many ads in all media they think they saw or heard during one day. The results are shown.

	Number				
	1-30	31-50	51-100	101-300	301 or more
Men	45	60	90	54	51
Women	50	50	54	30	26

At $\alpha = 0.01$, is the number of ads people feel that they see or hear related to the gender of the person?

Source: Based on information from *USA TODAY*.

14. An instructor wishes to see if the way people obtain information is independent of their educational background. A survey of 400 high school and college graduates yielded this information. At $\alpha = 0.05$, test the claim that the way people obtain information is independent of their educational background.

	Television	Newspapers	Other sources
High school	159	90	51
College	27	42	31

Source: *USA TODAY*.

15. A researcher who wants to see if there is a relationship between working and grades collects the following data:

Hours of work	A	B	C	D/F
20+	5	8	3	5
10-20	5	12	6	4
Less than 10	8	20	6	10

With $\alpha = 0.05$, can the researcher claim working and grades are independent?

16. A researcher wants to see if there is a relationship between speeding and states of residence on Interstate 75 near Findlay, Ohio. These data are collected:

	Ohio	Michigan
Speeders (66 mph or more)	18	25
Nonspeeders (65 mph or less)	27	15

Using $\alpha = 0.05$, can it be concluded that the state of residence and speeding are independent?

17. A study is being conducted to determine whether the age of the customer is related to the type of movie he or she rents. A sample of renters gives the data shown