9.4 Determining Independence

Name_____Hour_____

1.

Identify whether the events are independent or not independent.

a. Flip a coin twice and get tails both times. ◯ Independent ◯ Not Independent

b. Roll a number cube and get 1 on the first roll and 6 on the second. ◯ Independent ◯ Not Independent

c. Draw an ace from a shuffled deck, put the card back and reshuffle the deck, and then draw an 8. ◯ Independent ◯ Not Independent

d. Rotate a bingo cage and draw the ball labeled B-4, set it aside, and then rotate the cage again and draw the ball labled N-38. ◯ Independent ◯ Not Independent

2.

The two-way frequency table shows data for 80 randomly selected people who live in a metropolitan area. Is the event that a person prefers public transportation independent of the event that a person lives in the city?

	Prefers to Drive	Prefers Public Transportation	Total
Lives in the City	12	24	36
Lives in the Suburbs	33	11	44
Total	45	35	80

3.

The two-way frequency table shows data for 120 randomly selected people who take vacations. Is the event that a person prefers vacationing out of state independent of the event that a person is a woman?

	Prefers Vacationing Out of State	Prefers Vacationing in State	Total
Men	48	32	80
Women	24	16	40
Total	72	48	120

4.

The manager of a produce stand wants to find out whether there is a connection between people who buy fresh vegetables and people who buy fresh fruit. The manager collects data on 200 randomly chosen shoppers, as shown in the two-way frequency table. Determine whether buying fresh vegetables and buying fresh fruit are independent events.

	Bought Vegetables	No Vegetables	Total
Bought Fruit	56	20	76
No Fruit	49	75	124
Total	105	95	200

5.

The owner of a bookstore collects data about the reading preferences of 60 randomly chosen customers, as shown in the two-way frequency table. Determine whether being a female and preferring fiction are independent events.

	Prefers Fiction	Prefers Nonfiction	Total
Female	15	10	25
Male	21	14	35
Total	36	24	60

6.

The psychology department at a college collects data about whether there is a relationship between a student's intended career and the student's like or dislike for solving puzzles. The two-way frequency table shows the collected data for 80 randomly chosen students. Determine whether planning for a career in a field involving math or science and a like for solving puzzles are independent events.

	Plans a Career in a Math/Science Field	Plans a Career in a Non-Math/Science Field	Total
Likes Solving Puzzles	35	15	50
Dislikes Solving Puzzles	9	21	30
Total	44	36	80