Name:_____ **Block:**_____ **Date:**_____

Two-Way Table Practice Analysis Questions

Directions: For each question analyze the data given in the two-way tables to answer the questions. Remember to think about whether the question is asking for analysis of *frequency*, *relative frequency*, or *relative frequency by row or column*.

1. A group of people was surveyed about a movie they watched, and answered the questions: Have you read the book or not, and did you like the movie or not? The results are shown in the two-way table below.

	Liked the movie	**Disliked the movie**	**Total**
Read the book	64	16	80
Did not read the book	50	50	100
Total	114	66	180

   a. How likely are people who read the book to like the movie?

   b. Does reading the book affect how likely you are to like the movie? How do you know?

   c. What is the frequency of people who liked the movie?

   d. What percentage of people read the book?

2. A group of people was surveyed about a restaurant experience they had, and answered the questions: Were you satisfied with the service, and were you satisfied with the food? The results are shown in the two-way table below.

	Satisfied with service	**Dissatisfied with service**	**Total**
Satisfied with food	72	8	80
Dissatisfied with food	9	21	30
Total	81	29	110

   a. Are people more likely to be dissatisfied with service or food?

   b. Does being dissatisfied with service affect how people feel about the food?

   c. True or False: People who were satisfied with service were 8 times more likely to be satisfied with food.

3. Here is a two-way table that gives some (but not all) results from a survey that asks: Do you play a sport? And Do you play an instrument?.

   a. Complete the table, assuming that all students answered both questions.

	Plays Instrument	**Does not play instrument**	**Total**
Plays a sport	5		16
Does not play a sport			
Total		15	25

   b. To the nearest percentage point, what percentage of students who play a sport don't play a musical instrument?

   c. To the nearest percentage point, what percentage of students who don't play a sport also don't play a musical instrument?

4. A scientist is interested in whether certain species of butterflies like certain types of local flowers. The scientist captures butterflies in 2 zones with different flower types and records the number caught. The data is in the two-way table below

	Zone 1	Zone 2
Eastern Tiger Swallowtail	16	58
Monarch	24	29

   a. Do these data show an association between butterfly type and zone? Explain your reasoning.

5. A farmer brings his produce to the farmer's market and records whether people buy lettuce, apples, both, or something else.

	Bought Apples	Did not buy apples
Bought lettuce	14	58
Did not buy lettuce	8	29

   a. Make a table that shows the relative frequencies for each row. Use this table to decide if there is an association between buying lettuce and buying apples.

	Bought Apples	Did not buy apples
Bought lettuce		
Did not buy lettuce		

6. Ethan asked a random sample of students the two questions below.

   - Do you have brothers or sisters?
   - Does your family have a dog?

   Ethan created this table to display the data he collected.

	Have no dog	**Have a dog**
Have no siblings	15	25
Have siblings	80	60

   a. Based on the table, what is the total number of students that have no brothers or sisters? Show or explain how you got your answer.

   b. Based on the table, what percentage of students that have no brothers or sisters have a dog? Show or explain how you got your answer.

   c. Of the students represented in the table that have no dog, what is the ratio of students that have brothers or sisters to students that have no brothers or sisters? Show or explain how you got your answer.

   d. Ethan believes that students that have no brothers or sisters are more likely to have a dog than are students that have brothers or sisters. Does the data support Ethan's belief? Explain your reasoning.

7. Noah gathered data at his school among 7th and 8th graders to see if there was an association between grade level and handedness. The table and graph show his data, but the number of right-handed 8th graders is missing.

	Left Handed	Right Handed
7th grade	11	72
8th grade	24	

Noah found there was no evidence of an association between grade level and handedness. What is a possible number of right-handed 8th graders that could make this true?

8. Jada surveyed all 7th and 8th graders at her school about whether they have pets. Complete the missing entries in this two-way table.

	Has Pet	Has no Pet	Total
7th grade	102		150
8th grade		68	175
Total			

9. At a school social, children attend with family members. Everyone had a choice between a sweet snack and a salty snack. Here is a two-way table showing the number of adults and children who made each choice of snack.

	Sweet Snack	Salty Snack	Total
Adult	57	88	145
Child	77	31	108
Total	134	119	253

Complete the table with relative frequency by row. Round to the nearest percent.

	Sweet Snack	Salty Snack	Total
Adult			100%
Child			100%
Total			100%

10. The superintendent of Madison School District asked 175 middle school and high school teachers whether they prefer teaching morning classes or afternoon classes. This table shows the relative frequencies from the survey.

	Morning Classes	Afternoon Classes	Total
Middle School Teachers	0.28	0.16	0.44
High School Teachers	0.4	0.16	0.56
Total	0.68	0.32	1.00

a. How many more teachers prefer teaching morning classes than prefer teaching afternoon classes?

b. If another middle/high school had the same distribution of data but had 320 teachers, approximately how many middle school teachers would prefer morning classes?

11. A wildlife research team observed 32 animals from different species in a nature reserve. Each animal was categorized based on: *The type of environment it was found in and whether it was active mostly during the day (diurnal) or at night (nocturnal). The results were as follows:*

    - *In the forest they observed 6 diurnal animals and 3 nocturnal animals*
    - *In the grassland they observed 4 diurnal animals and 5 nocturnal animals*
    - *In the wetlands they observed 3 diurnal animals and 5 nocturnal animals*
    - *In the desert they observed 2 diurnal animals and 4 nocturnal animals*

    a. *Create a two-way table based on their findings*

    b. *Write two analysis questions that could be answered using the two-way table*