Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Conditional Probability from Tables**

**The frequencies of the marbles in a bag are shown in the table. Write answers as reduced fractions.**

|  |  |  |
| --- | --- | --- |
|  | **GREEN** | **BLUE** |
| LARGE | 2 | 4 |
| SMALL | 8 | 12 |

1. Find P(small)
2. Find P(green|large)

|  |  |  |
| --- | --- | --- |
|  |  | ***Work less than 5 miles from home?*** |
|  |  | **YES** | **NO** |
| Use new system? | **YES** | 24 | 32 |
| **NO** | 44 | 20 |

**A town planning committee is considering a new system for public transit. Residents of the town were randomly selected to answer two questions: “Do you work less than 5 miles from home?” and “Would you use the new system to get to work, if it were available?” The results are shown in the table below. Write answers as reduced fractions.**

1. If residents work less than 5 miles from home, what is the probability that they would use the new system?
2. If residents are willing to use the new system, what is the probability that they don’t work less than 5 miles from home?

**The table shows the results of a poll of randomly selected high school students who were asked if they prefer to hear all school announcements in the morning or afternoon. Write answers as reduced fractions.**

|  |  |  |
| --- | --- | --- |
|  | **Underclassmen** | **Upperclassmen** |
| Morning | 8 | 14 |
| Afternoon | 18 | 10 |

1. Find P(Morning|Underclassmen)
2. Find P(Afternoon|Upperclassmen)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Arlington** | **Towson** | **Parkville** |
| Yes | 40 | 35 | 41 |
| No | 18 | 10 | 6 |

**The table shows the results of a customer satisfaction survey for a cellular service provider, by location of the customer. In the survey, customers were asked whether they would recommend a plan with the provider to a friend. Write answers as reduced fractions.**

1. Find P(Yes)
2. Find P (Yes|Arlington)
3. Are the 2 probabilities the same?

**Roberto is the owner of a car dealership. He is assessing the success rates of his top three sales people in order to offer one of them a promotion. Over two months, for each attempted sale, he records whether the sales person made a successful sale or not. The results are shown in the cart below. Write answers as reduced fractions.**

|  |  |  |
| --- | --- | --- |
|  | **Successful** | **Unsuccessful** |
| Becky | 6 | 6 |
| Raul | 4 | 5 |
| Darrell | 6 | 9 |

1. Find P(Successful|Becky)
2. Find P(Unsuccessful|Darrell)

\_\_\_\_\_\_\_ 12. Tom really enjoys his job. The probability of Tom working overtime is 55%. The probability of Tom working overtime and getting a promotion is 35%. Find the probability that Tom will get a promotion given he works overtime.