

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

### The Conditional Probability from Tables

The frequencies of the marbles in a bag are shown in the table.

$\frac{10}{13}$  1. Find  $P(\text{small})$   $\frac{20}{26}$

$\frac{1}{3}$  2. Find  $P(\text{green} | \text{large})$   $\frac{2}{6}$

	GREEN	BLUE	
LARGE	2	4	6
SMALL	8	12	20
	10	16	26

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.

		Work less than 5 miles from home?		
		YES	NO	
Use new system?	YES	24	32	56
	NO	44	20	64
		68	52	120

$\frac{6}{17}$  3. If residents work less than 5 miles from home, what is the probability that they would use the new system?  $P(\text{new system} | \text{less than 5 mi})$   
 $\frac{24}{68}$

$\frac{4}{7}$  4. If residents are willing to use the new system, what is the probability that they don't work less than 5 miles from home?  $P(\text{not less than 5} | \text{new sys.})$   
 $\frac{32}{56}$

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.

	Underclassmen	Upperclassmen	
Morning	8	14	22
Afternoon	18	10	28
	26	24	50

$\frac{4}{13}$  5. Find  $P(\text{Morning} | \text{Underclassmen})$   $\frac{8}{26}$

$\frac{5}{12}$  6. Find  $P(\text{Afternoon} | \text{Upperclassmen})$   $\frac{10}{24}$

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.

$\frac{58}{116}$  7. Find  $P(\text{Yes})$   $\frac{116}{150}$

$\frac{20}{29}$  8. Find  $P(\text{Yes} | \text{Arlington})$   $\frac{40}{58}$

$\frac{20}{29}$  9. Are the 2 probabilities the same?

	Arlington	Towson	Parkville	
Yes	40	35	41	116
No	18	10	6	34
	58	45	47	150

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.

$\frac{1}{2}$  10. Find  $P(\text{Successful} | \text{Becky})$   $\frac{6}{12}$

$\frac{3}{5}$

11. Find  $P(\text{Unsuccessful} | \text{Darrell})$   
 $\frac{9}{15}$

	Successful	Unsuccessful	
Becky	6	6	12
Raul	4	5	9
Darrell	6	9	15
	16	20	36

Mrs. Koehler surveyed 430 men and 200 women about their vehicles. Of those surveyed, 160 men and 85 women said they own a blue vehicle.

$\frac{160}{430}$  12. If a randomly chosen person is a man, what is the probability of that person having a blue car?

$\frac{11}{18}$  13.  $P(\text{Blue})$   $\frac{385}{630}$

$\frac{23}{77}$  14.  $P(\text{Women} | \text{Not Blue})$   $\frac{115}{385}$

$\frac{3}{7}$  15.  $P(\text{Men} \cap \text{Not Blue})$   $\frac{270}{630}$

	Blue	Not Blue	
Men	160	270	430
Women	85	115	200
	245	385	630