

Name: _____ Date: _____

Conditional Probability Homework

A random survey was taken to gather information about grade level and car ownership status of students at a school. This table shows the results of the survey.

| | Owns a Car | Does Not Own a Car | TOTAL |
|--------|------------|--------------------|-------|
| Junior | 6 | 10 | 16 |
| Senior | 12 | 8 | 20 |
| TOTAL | 18 | 18 | 36 |

1/3 1. Find the probability that a randomly selected student will be a junior, given that the student owns a car. $\frac{6}{18}$

3/5 2. Find the probability that a randomly selected student will own a car, given that the student is a senior. $\frac{12}{20}$

The table below shows numbers of registered voters by age in the United States in 2004 based on the census. Find each probability in decimal form.

| Age | Registered Voters (in thousands) | Not Registered to Vote (in thousands) | |
|-------------|-------------------------------------|--|----------------|
| 18–24 | 14,334 | 13,474 | <u>27,808</u> |
| 25–44 | 49,371 | 32,763 | <u>82,134</u> |
| 45–64 | 51,659 | 19,355 | <u>71,014</u> |
| 65 and over | 26,706 | 8,033 | <u>34,739</u> |
| | <u>142,070</u> | <u>73,625</u> | <u>215,695</u> |

0.52 3. Find the probability that a randomly selected person is registered to vote, given that the person is between the ages of 18 and 24. $\frac{14,334}{27,808}$

0.23 4. Find the probability that a randomly selected person is not registered to vote, given that they are 65 and over. $\frac{8,033}{34,739}$

0.09 5. Find the probability that a randomly selected person is between the ages of 45 and 64 and is not registered to vote. $\frac{19,355}{215,695}$

A faculty advisor at Ridge High School surveyed 100 students about their preference for a social event. Of the 100 students surveyed, 50 were tenth graders and 50 were eleventh graders. Of the tenth graders, 30 chose a bowling party and 20 chose a dance. Of the eleventh graders, 20 chose a bowling party and 30 chose a dance.

6. Make a two way frequency table to represent the data.

| | Bowling (B) | Dance (D) | |
|------------------------------|-------------|-----------|-----|
| 10 th graders (T) | 30 | 20 | 50 |
| 11 th graders (E) | 20 | 30 | 50 |
| | 50 | 50 | 100 |

$\frac{1}{2}$ 7. Find $P(B)$. $\frac{50}{100}$

$\frac{3}{5}$ 8. Find $P(B|T)$. $\frac{30}{50}$

yes! 9. Do you think that the probability of liking bowling is dependent on whether a student is in the 10th or 11th grade?

10)

| | P | R | |
|---|---|----|----|
| C | 2 | 5 | 8 |
| B | 3 | 4 | 7 |
| | 5 | 10 | 15 |

11) $\frac{5}{8} = \frac{3}{4}$