

NAME: _____

P.I. A.S.18: Know the definition of conditional probability and use it to solve for probabilities in finite sample spaces

1. Describe how finding $P(\text{male} \mid \text{over 30 years old})$ is different from and/or the same as finding $P(\text{over 30 years old} \mid \text{male})$.

2. This table shows the results of a survey about language study in one school.

	French	Spanish	Japanese	German
9th graders	60	75	24	31
10th graders	80	92	25	28
11th graders	44	53	17	20
12th graders	24	38	15	12

Find a conditional property based on this table.

Answers may vary. Sample: For $P(\text{male} \mid \text{over 30 years old})$, first find the total number of people in the sample space who are over 30 years old. The probability is the number of males over 30 divided by the number of people over 30 years old. For $P(\text{over 30 years old} \mid \text{male})$, find the total number of males in the sample space. The probability is the number of males over 30 divided by the total number of males.

[1] The numerators are the same for the two probabilities. The denominators are different.

[2] Answers may vary. Sample: $P(\text{Spanish} \mid \text{9th grader}) = \frac{75}{190} = 0.3947$ or 39%