

Warm-Up



1. Put your phones away.
2. Take out your classwork/homework from yesterday to go over it.

What am I learning today?

Learning Objective 6.4

How to calculate conditional probability.

Learning Objective 6.5

How to use two-way frequency tables.

Conditional probability - The **PROBABILITY**

which a 2nd event will occur AFTER the 1st event has **ALREADY** occurred

$P(A | B)$ = Find $P(A)$ 'given' event B has already happened --> $\frac{P(A \cap B)}{P(B)}$ ('AND')

Written as a fraction first!

These are **DEPENDENT** events!

1. $P(\text{Jack} | \text{red card})$
denominator

$$\frac{2}{26} \rightarrow \frac{1}{13} \text{ OR } 7.7\%$$

2. $P(\text{red card} | \text{Jack})$

$$\frac{2}{4} \rightarrow \frac{1}{2} \text{ OR } 50\%$$

3. A face card randomly drawn from a deck is a king
 $\{K, Q, J, 10\}$

$$\frac{4}{12} = \frac{1}{3} \text{ OR } 33.3\%$$

4. A queen randomly drawn from a deck is a diamond.

$$\frac{1}{4} \text{ OR } 25\%$$

5. P(King | even card)

$$\sum 2, 4, 6, 8, 10 \cdot 4$$

$$\frac{0}{20} \text{ OR } 0\%$$

6. The probability that a student is passing Geometry is 73%. The probability of a student passing the Geometry and passing the EOC is 65%. Find the probability that a student passes the EOC given that they are passing Geometry.

$$\rightarrow \frac{0.65}{0.73} = .89 \text{ OR } 89\%$$

7. The probability that Patricia smokes is $\frac{4}{5}$. The probability that she smokes and develops lung cancer is $\frac{2}{5}$. Find the probability that Patricia develops lung cancer given that she smokes.

$$\frac{4}{7} = 0.57 \quad \frac{0.4}{0.57} = 0.70 \text{ OR } 70\%$$

$$\frac{2}{5} = 0.4$$

Two-Way Frequency Tables - When data is collected and **COUNTED** and **2** descriptions are possible. (OLD ALGEBRA TOPIC)

	SUV	Sports	Total
Male	21	39	60
Female	135	45	180
Total	156	84	240

Using the table above, answer the following questions.

1. What is the probability of a person being a female?

$$\frac{180}{240} = \frac{3}{4} \text{ OR } 75\%$$

2. What is the probability of a being a male and owning a sports car?

$$\frac{39}{240} \rightarrow \frac{13}{80} \text{ OR } 16.3\%$$

3. What is the probability of a male owning a sports car?

$$\frac{39}{60} \rightarrow \frac{13}{20} \text{ OR } 65\%$$

4. What is the probability of being a female and owning an SUV?

$$\frac{135}{240} \rightarrow \frac{9}{16} \text{ OR } 56.3\%$$

	SUV	Sports	Total
Male	21	39	60
Female	135	45	180
Total	156	84	240

5. What percent drives an SUV?

$$\frac{156}{240} \rightarrow \frac{13}{20} \text{ OR } 65\%$$

6. What is the probability of a female driving an SUV?

$$\frac{135}{180} \rightarrow \frac{3}{4} \text{ OR } 75\%$$

7. Find the P(Male)' \leftarrow NOT

$$\frac{180}{240} \rightarrow \frac{3}{4} \text{ OR } 75\%$$

8. Find the P(female and owning a sports car)

$$\frac{45}{240} \rightarrow \frac{3}{16} \text{ OR } 18.8\%$$

	Math	Science	Language Arts	Social Studies	Total
9 th					
10 th	35	140	84	91	350
Total	100	200	120	140	

Fill in the table with the information below. Then, find the probability of each scenario.

- Out of 350 10th graders, 10% liked Math, 40% liked Science, 24% liked Language Arts, and 26% liked Social Studies as their favorite subjects.
- There were a total of 100 students who liked Math, 200 who liked Science, 120 liked Language Arts, and 140 liked Social Studies.

	Math	Science	LA	Social Studies	Total
9th	65	60	36	49	210
10th	35	140	84	91	350
Total	100	200	120	140	560

3. $P(\overline{\text{Math}}) = \frac{460}{560} \rightarrow \frac{23}{28}$ OR
82.1%

4. $P(\text{10th grader and likes language arts})$

$$\frac{84}{560} \rightarrow \frac{3}{20} \text{ OR } 15\%$$

5. $P(\text{9th grader} \cap \text{Science})$

$$\frac{60}{560} \rightarrow \frac{3}{28} \text{ OR } 10.7\%$$

6. $P(\text{Math U 10th grader})$

$$\frac{100}{560} + \frac{350}{560} - \frac{35}{560} \rightarrow \frac{83}{112} \text{ OR } 74.1\%$$

	Math	Science	LA	Social Studies	Total
9th	65	60	36	49	210
10th	35	140	84	91	350
Total	100	200	120	140	560

7. $P(\text{Language Arts} \mid \text{9th grader})$

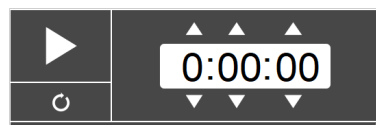
$$\frac{36}{210} \leftarrow \frac{6}{35} \text{ OR } 17.1\%$$

8. What is the probability that a 10th grade student likes Social Studies?

$$\frac{91}{350} \rightarrow \frac{13}{50} \text{ OR } 26\%$$

9. $P(\text{9th grader} \mid \text{Math})$

$$\frac{65}{100} \leftarrow \frac{13}{20} \text{ OR } 65\%$$

Classwork:

Complete the classwork about two-way frequency table probability.

Take out your EOC packet to start going over the problems.

HW: Finish your classwork and study for the EOC