

1. After surveying math majors at a local university, Mr. Sullivan finds that 55% took Calculus in high school, 48% took Statistics, and 32% took both Calculus and Statistics. Use a Venn Diagram to find the probability that a randomly selected math major has:

- taken only Calculus and not Statistics in high school.
- neither Calculus nor Statistics in high school?
- $P(\text{Statistics} \mid \text{Calculus})$?
- taken only one of the courses in high school.
- $P(\text{Calculus} \mid \text{Statistics})$?
- Is taking Calc independent of taking Statistics? Justify!

2. We surveyed students and asked if they enjoyed two popular hamburgers:

Favorite Burgers

		Big Mayak	
		Yes	No
Hwopper	Yes	0.44	0.27
	No	0.18	0.11

- Draw a Venn Diagram that represents the probabilities in the table.

- Find $P(\text{Big Mayak} \mid \text{Hwopper})$.
- Find $P(\text{Hwopper} \mid \text{Big Mayak})$.
- $P(\text{Big Mayak})$.
- What is the probability that a student likes EITHER a Big Mayak OR a Hwopper, but not both?
- Is "liking Big Mayak" independent of liking "Hwopper?" Show why below.

12.2 Corrective Assignment Answers

1. a. 0.23 b. 0.29 c. $\frac{0.32}{0.55} = 0.58$ d. 0.39 e. 0.67 f. We must check to see if $P(\text{Calc}) = P(\text{Calc} \mid \text{Stats})$. It doesn't! $0.55 \neq 0.67$
2. a. 0.62 b. 0.71 c. 0.62 d. 0.62 e. 0.45 f. We must check to see if $P(\text{BM}) = P(\text{BM} \mid \text{HWopper})$. They do! (See b and d)