

Feb 10, 2023 Warm-Up

Probability Practice:

- 1) What is the probability that a child in U.S. is raised in a single-parent home?
- 2) What percent of the U.S. population identifies as black?
- 3) What percent of K-12 teachers are men?
- 4) What is the probability that a randomly selected K-12 teacher is male, given that the teacher selected teaches in an elementary school?
- 5) What is the probability that a randomly selected teacher is a black male, given that they teach K-12?
- 6) What is the probability that a randomly selected K-12 teacher is a black, given that they identify as male?

Probability Practice:

- 1) What is the probability that a child in U.S. is raised in a single-parent home? $S = \text{child raised in single - parent}$

$$P(\text{child raised in single - parent})$$

$$P(S) = 0.34 \text{ or approximately } 34\%$$

- 2) What percent of the U.S. population identifies as black?

$$P(\text{black in U.S.}) = 0.14 \text{ or approximately } 14\%$$

- 3) What percent of K-12 teachers are men? $M = \text{K-12 Male}$

$$P(K - 12 \text{ male teachers}) = 0.26 \text{ or about } 26\%$$

- 4) What is the probability that a K-12 teacher is male, given that he teaches in an elementary school?

$$P(M \mid \text{in elem. school}) = 0.17$$

- 5) What is the probability that a teacher is black male, given that they teach in K-12? $BM = \text{identifies as Black male}$

$$P(BM \mid \text{teach in K - 12}) = \mathbf{0.02} \text{ or about } \mathbf{2\%}$$

6) What is the probability that a randomly selected teacher is a black man, given that the K-12 teacher is male?

$$P(BM \mid \text{male K12 teacher}) = \frac{P(BM \cap \text{male})}{P(\text{male K12 teacher})}$$

$$P(BM \mid \text{male K12 teacher}) = \frac{0.02}{0.26} = \mathbf{0.0769}$$

Therefore, when you consider the proportion of **ALL** K-12 teachers that are men, then black men are not under-represented as compared to this given population.

S = child in U.S. is raised in a single-parent home

$$P(S) = 0.34$$

$$P(S \mid \text{White family}) = ?$$

$$P(S \mid \text{Asian family}) = ?$$

$$P(S \mid \text{Black family}) = ?$$

$$P(S \mid \text{Hispanic family}) = ?$$

$$P(S \mid \text{Mixed race}) = ?$$

$$P(S) = 0.34$$

$$P(S| \textit{White family}) = 0.24$$

$$P(S| \textit{Asian family}) = 0.16$$

$$P(S| \textit{Black family}) = 0.64$$

$$P(S| \textit{Hispanic family}) = 0.42$$

$$P(S| \textit{Mixed race}) = 0.28$$