

Quiz 8-31 (9-1) Practice

[1] In a class of 30 students, there are 12 who take French, 16 who take Spanish, and 6 take neither one. A student is chosen at random.

F = the event that the student takes French

S = the event that the student takes Spanish

Find the following probabilities. (Reminder: A probability is a number between 0 and 1.)

[a] $P(F' \cap S')$

[b] $P(F \cap S)$

[c] $P(F \cup S)$

[d] $P(F' \cap S)$

[2] Given $P(A) = \frac{1}{2}$, $P(A \cup B) = \frac{7}{12}$, $P(A \cap B) = \frac{1}{6}$. Find the following probabilities.

[a] $P(A \cap B)'$

[b] $P(B)$

[c] $P(B')$

[3] A letter is chosen from the alphabet at random. What is the probability that the chosen letter is in the word ALPHABETICAL and in the word ALABAMA?

[4] In a class of 50 students, 20 have a dog as a pet, 16 have a cat, while 20 have neither one. A student is chosen at random.

D = the student selected has a dog

C = the student selected has a cat

Find the following probabilities.

[a] $P(C')$

[b] $P(C \cap D)$

[c] $P(C | D)$

[d] $P(D | C)$

[5] For events A and B, we know that $P(A) = \frac{1}{2}$, $P(B) = \frac{5}{8}$, and $P(A' \cap B') = \frac{1}{4}$. Find the following probabilities.

[a] $P(A | B)$

[b] $P(B | A)$