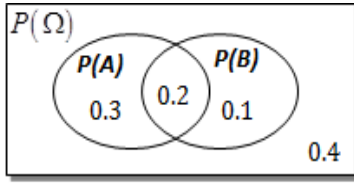


MUTUALLY EXCLUSIVE (Disjoint) EVENTS vs. INCLUSIVE EVENTS

1. Consider the VENN diagrams at the right to help you answer the following.

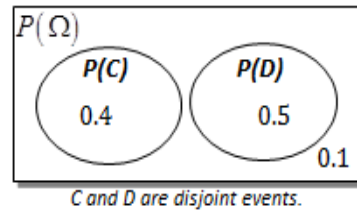
A. $P(A) =$

Decimal:



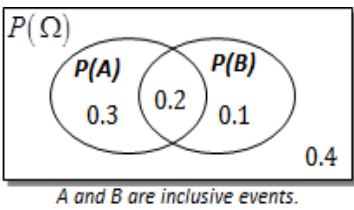
F. $P(C) =$

Decimal:



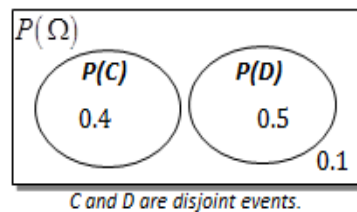
B. $P(A \text{ and } B) = P(A \cap B) =$

Decimal:



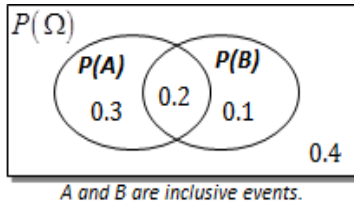
G. $P(C \text{ and } D) = P(C \cap D) =$

Decimal:



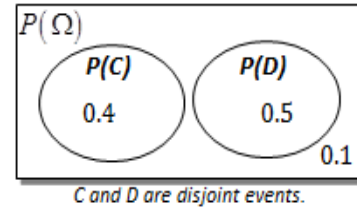
C. $P(A \text{ or } B) = P(A \cup B) =$

Decimal:



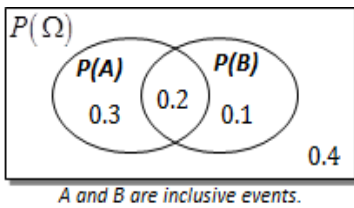
H. $P(C \text{ or } D) = P(C \cup D) =$

Decimal:



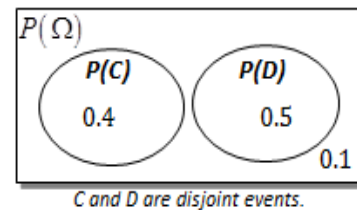
D. $P(A^c) = P(A') =$

Decimal:



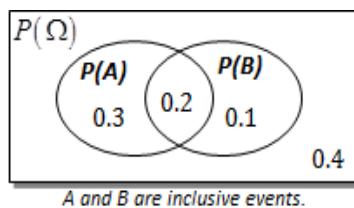
I. $P(C^c) = P(C') =$

Decimal:



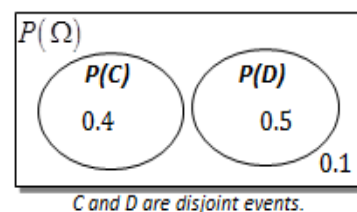
E. $P(A \text{ and } B^c) = P(A \cap B') =$

Decimal:

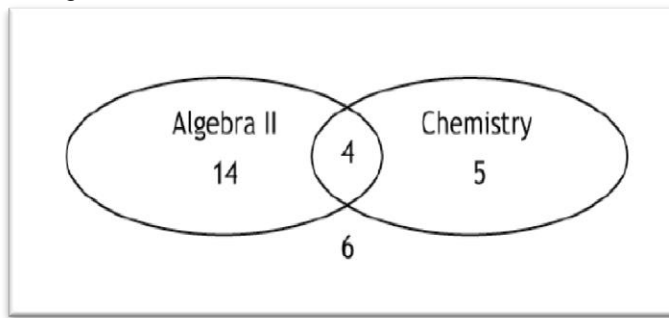


J. $P(C^c \text{ and } D^c) = P(C' \cap D') =$

Decimal:



2. Ms. Snow conducted a survey of her homeroom. She asked students what math course and what science course they were taking this semester. Below are the results.



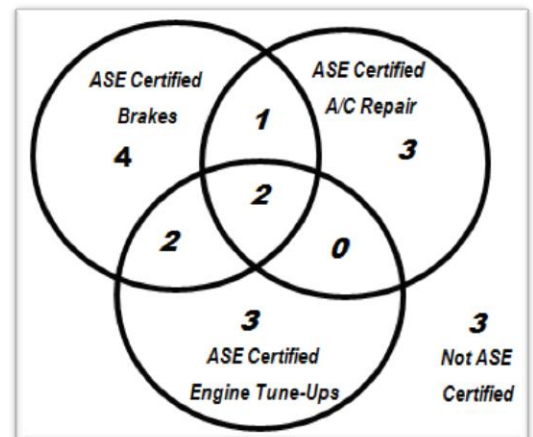
- a. If a student is selected at random from Ms. Snow's homeroom, what is the probability that the student is taking Algebra II and Chemistry?

- c. If a student is selected at random from Ms. Snow's homeroom, what is the probability that the student is not taking either Algebra II or Chemistry? $P(\text{Algebra II or Chemistry})^c$

- b. Find the probability : $P(\text{Algebra II or Chemistry})$.

- d. Find the probability of a student taking Chemistry, given that the student is not taking Algebra II, or $P(\text{Chemistry} | \text{not taking Algebra II})$.

3. A manager that owns 3 local area Car Maintenance Garages was researching certifications of mechanics that worked for her company. Consider the following Venn diagram.



- a. What is the probability that a randomly selected mechanic from her 3 garages is ASE certified to work on Brakes? $P(\text{Brakes})$

- b. What is the probability that a randomly selected mechanic from her 3 garages is ASE certified to work on Brakes or A/C? $P(\text{Brakes or A/C})$

- c. What is the probability that a randomly selected mechanic from her 3 garages is ASE certified to work on Brakes and Engine Tune-Ups? $P(\text{Brakes and Tune-Ups})$

- d. What is the probability that a randomly selected mechanic that is certified in Brakes given that the mechanic is certified to do Tune-Ups? $P(\text{Brakes} | \text{Tune-Ups})$