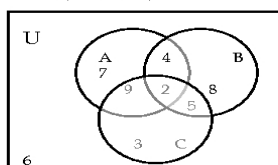


Venn Diagram Worksheet

1. Use the Venn diagram in the following figure. The number of elements in each subset is given. Compute

- a. $n(A \cup B)$ b. $n(A \cup B)'$ c. $n(A \cap B)$ d. $n(A \cap B)'$
 e. $n(A' \cup B')$ f. $n(B \cap C')$



2. The following information gives the number of elements in some subsets of A , B , and C . Represent this information with a Venn diagram. $n(A \cap B \cap C) = 2$, $n(A \cap B) = 6$, $n(B \cap C) = 3$, $n(A \cap C) = 5$, $n(A) = 15$, $n(B) = 12$, $n(C) = 15$

3. The following information gives the number of elements in some subsets of A , B , and C . Represent this information with a Venn diagram. $n(A \cap B \cap C) = 6$, $n(A \cap B) = 7$, $n(A \cap C) = 11$, $n(A \cup B \cup C) = 33$, $n(A) = 14$, $n(B) = 20$, $n(C) = 23$

hint $n(A \cup B \cup C) = n(A) + n(B) + n(C) - n(A \cap B) - n(A \cap C) - n(B \cap C) + n(A \cap B \cap C)$

4. A marketing class polled 150 people at a shopping center to determine how many read the *Daily News* and how many read the *Weekly Gazette*. They found the following:
 126 read the *Daily News*, 31 read both, 10 read neither.

5. If a universal set contains 500 elements, $n(A) = 240$, $n(A \cup B) = 460$, $n(A \cap B) = 55$, find $n(B)$.

6. If a universal set contains 250 elements, $n(A) = 85$, $n(B) = 139$, $n(A \cap B) = 35$, find $n(A \cup B)$.

7. If 20 people belong to the Alpha Club, 30 people belong to the Beta Club, and six belong to both clubs:
 a. How many belong only to the Alpha Club?
 b. How many belong only to the Beta Club?
 c. How many belong to just one club?
 d. How many belong to at least one club?

8. Of the 19 fast food businesses on Valley Mills Drive, the number that have a drive-up window, outside seating, or a pay telephone is summarized as follows:
 15 have a drive-up window, 14 have outside seating, 5 have pay telephones, 10 have a drive-up window and outside seating, 4 have outside seating and a pay telephone, 3 have a drive-up window and a pay telephone, 2 have all three.
 Find the number of businesses that have
 a. A drive-up window and no outside seating.
 b. A drive-up window and outside seating, but no pay telephone.
 c. No pay telephone.
 d. Only a drive-up window.
 e. Outside seating or a pay telephone.