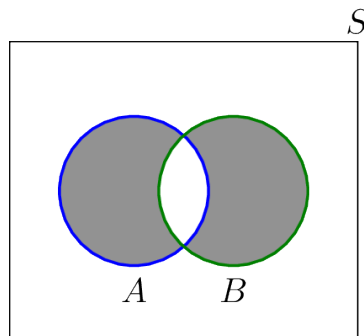


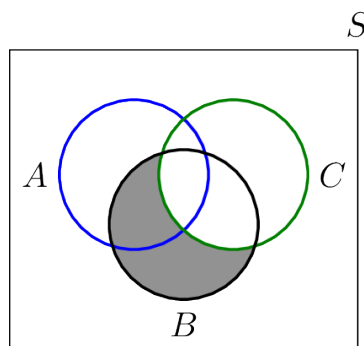
Problem 3

For each of the following Venn diagrams, write the set denoted by the shaded area.

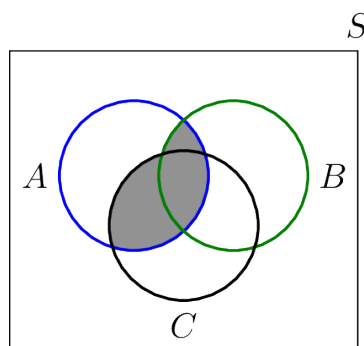
a.



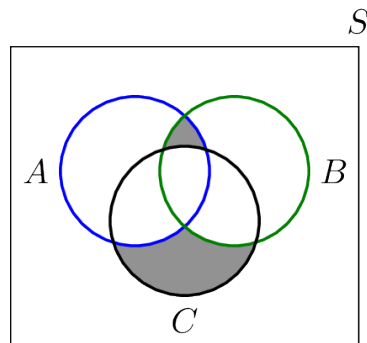
b.



c.



d.

**Solution**

a. The shaded area is the union of A and B without the elements common to both.

$$A \cup B - A \cap B$$

b. The shaded area is B without the elements of C .

$$B - C$$

c. The shaded area is the union of the intersections of A and B and of A and C .

$$(A \cap B) \cup (A \cap C)$$

d. The shaded area is the union of two areas. The one on top is the intersection of A and B without the elements of C . The one on the bottom is C without the elements of A and B .

$$(A \cap B - C) \cup (C - A - B)$$