Samples **Sets SOLUTIONS**

1. (**1**) $F = \{3, 7, -2, 4, 6, 1\}$

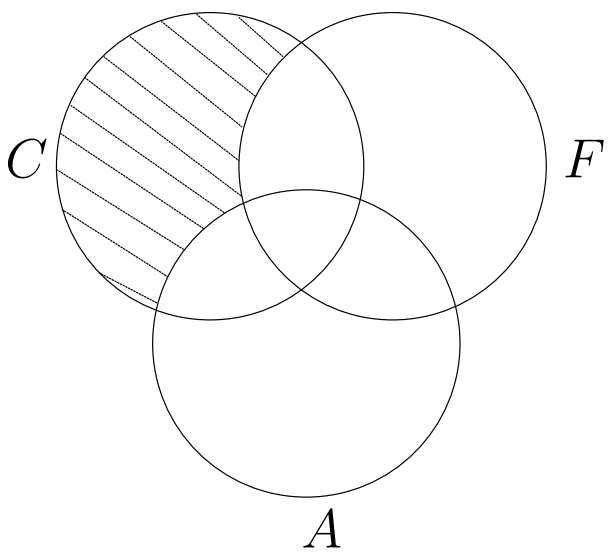
(**2**) $F \cup C = \{3, 7, -2, 4, 6, 1\} \cup \{-1, 2, 4, 6\} = \{3, -1, 7, 2, -2, 4, 6, 1\}$

(**3**) $C \cap F = \{-1, 2, 4, 6\} \cap \{3, 7, -2, 4, 6, 1\} = \{4, 6\}$

(**4**) $C \backslash F = \{-1, 2, 4, 6\} \backslash \{3, 7, -2, 4, 6, 1\} = \{-1, 2\}$

(**5**)

$$\begin{aligned} C \backslash (F \cup A) &= \{-1, 2, 4, 6\} \backslash (\{3, 7, -2, 4, 6, 1\} \cup \{3, 5, -2\}) \\ &= \{-1, 2, 4, 6\} \backslash \{3, 5, 7, -2, 4, 6, 1\} \\ &= \{-1, 2\} \end{aligned}$$



(**6**)

$$\begin{aligned} (F \cup A) \backslash C &= (\{3, 7, -2, 4, 6, 1\} \cup \{3, 5, -2\}) \backslash \{-1, 2, 4, 6\} \\ &= \{3, 5, 7, -2, 4, 6, 1\} \backslash \{-1, 2, 4, 6\} \\ &= \{3, 5, 7, -2, 1\} \end{aligned}$$

(**7**)

$$\begin{aligned} A \cup (C \cap F) &= \{3, 5, -2\} \cup (\{-1, 2, 4, 6\} \cap \{3, 7, -2, 4, 6, 1\}) \\ &= \{3, 5, -2\} \cup \{4, 6\} \\ &= \{3, 5, -2, 4, 6\} \end{aligned}$$

(**8**) $C \cap \emptyset = \{-1, 2, 4, 6\} \cap \emptyset = \emptyset$

(**9**)

$$\begin{aligned}(A \cap C) \setminus (F \setminus A) &= (\{3,5,-2\} \cap \{-1,2,4,6\}) \setminus (\{3,7,4,-2,1,6\} \setminus \{3,5,-2\}) \\ &= \emptyset \setminus \{7,4,1,6\} \\ &= \emptyset\end{aligned}$$

2. (**1**) $G = \{-3,3,-1,-2\}$

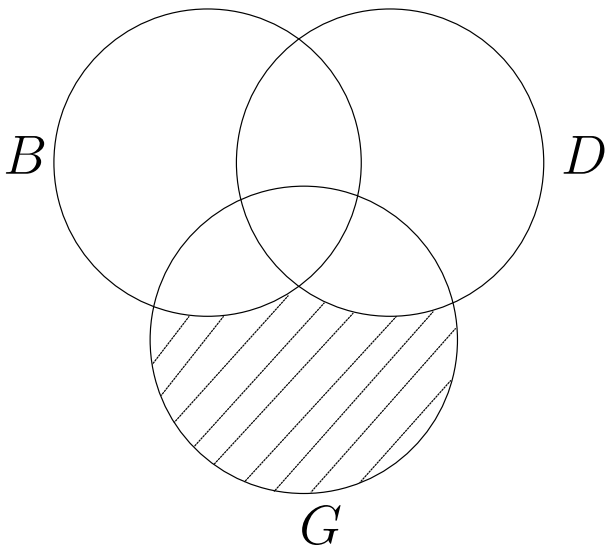
(**2**) $B \cup D = \{-3,2,9,8,6\} \cup \{3,2,4\} = \{-3,3,2,9,4,8,6\}$

(**3**) $D \cap G = \{3,2,4\} \cap \{-3,3,-1,-2\} = \{3\}$

(**4**) $D \setminus B = \{3,2,4\} \setminus \{-3,2,9,8,6\} = \{3,4\}$

(**5**)

$$\begin{aligned}G \setminus (B \cup D) &= \{-3,3,-1,-2\} \setminus (\{-3,2,9,8,6\} \cup \{3,2,4\}) \\ &= \{-3,3,-1,-2\} \setminus \{-3,3,2,9,4,8,6\} \\ &= \{-1,-2\}\end{aligned}$$



(**6**)

$$\begin{aligned}(D \setminus G) \cap B &= (\{3,2,4\} \setminus \{-3,3,-1,-2\}) \cap \{-3,2,9,8,6\} \\ &= \{2,4\} \cap \{-3,2,9,8,6\} \\ &= \{2\}\end{aligned}$$

(**7**)

$$\begin{aligned}G \cap (D \cup B) &= \{-3,3,-1,-2\} \cap (\{3,2,4\} \cup \{-3,2,9,8,6\}) \\ &= \{-3,3,-1,-2\} \cap \{3,-3,2,9,4,8,6\} \\ &= \{-3,3\}\end{aligned}$$

(**8**) $D \backslash \emptyset = \{3, 2, 4\} \backslash \emptyset = \{3, 2, 4\}$

(**9**)

$$\begin{aligned}(G \cup B) \setminus (B \cap D) &= (\{3, -3, -1, -2\} \cup \{-3, 2, 9, 8, 6\}) \setminus (\{-3, 2, 9, 8, 6\} \cap \{3, 2, 4\}) \\ &= \{3, -3, -1, 2, 9, -2, 8, 6\} \backslash \{2\} \\ &= \{3, -3, -1, 9, -2, 8, 6\}\end{aligned}$$

3. (**1**) $F = \{3, 5, 9\}$

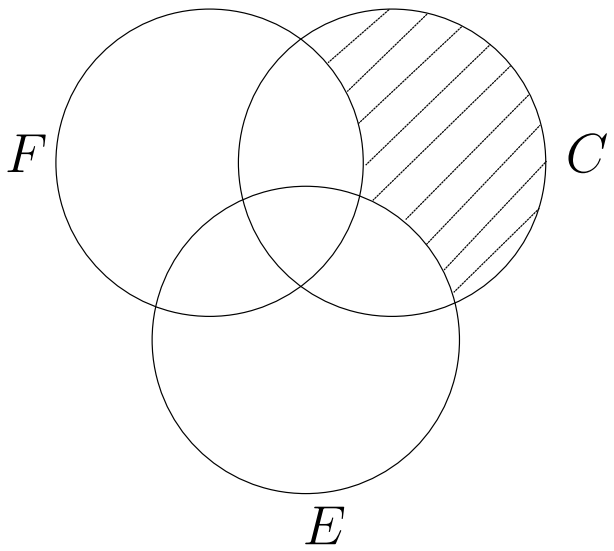
(**2**) $C \cup F = \{-3, 3, 0, 9, 4, 8, 1\} \cup \{3, 5, 9\} = \{-3, 3, 5, 0, 9, 4, 8, 1\}$

(**3**) $F \cap E = \{3, 5, 9\} \cap \{5, 7, 6\} = \{5\}$

(**4**) $F \backslash E = \{3, 5, 9\} \backslash \{5, 7, 6\} = \{3, 9\}$

(**5**)

$$\begin{aligned}C \setminus (E \cup F) &= \{-3, 3, 0, 9, 4, 8, 1\} \setminus (\{5, 7, 6\} \cup \{3, 5, 9\}) \\ &= \{-3, 3, 0, 9, 4, 8, 1\} \backslash \{3, 5, 7, 9, 6\} \\ &= \{-3, 0, 4, 8, 1\}\end{aligned}$$



(**6**)

$$\begin{aligned}(E \cup F) \setminus C &= (\{5, 7, 6\} \cup \{3, 5, 9\}) \setminus \{-3, 3, 0, 9, 4, 8, 1\} \\ &= \{3, 5, 7, 9, 6\} \backslash \{-3, 3, 0, 9, 4, 8, 1\} \\ &= \{5, 7, 6\}\end{aligned}$$

(**7**)

$$\begin{aligned}F \cap (E \setminus C) &= \{3, 5, 9\} \cap (\{5, 7, 6\} \backslash \{-3, 3, 0, 9, 4, 8, 1\}) \\ &= \{3, 5, 9\} \cap \{5, 7, 6\} \\ &= \{5\}\end{aligned}$$

(**8**) $\emptyset \cup C = \emptyset \cup \{3, -3, 0, 9, 4, 8, 1\} = \{-3, 3, 0, 9, 4, 8, 1\}$

(**9**)

$$\begin{aligned}(F \backslash F) \setminus (E \backslash C) &= (\{3, 5, 9\} \backslash \{3, 5, 9\}) \setminus (\{5, 7, 6\} \backslash \{3, -3, 0, 9, 4, 8, 1\}) \\ &= \emptyset \backslash \{5, 7, 6\} \\ &= \emptyset\end{aligned}$$