

# Set Operations and Cartesian Products I

## Contemporary Math (MAT-130)

---

Perform the indicated operations.

$$\text{Let } U = \{1, 2, 3, 4, 5, 6, 7, 8\} \quad A = \{1, 2, 3, 4\} \quad B = \{1, 3, 5, 7\}$$

$$C = \{6, 7, 8\} \quad D = \{4, 5\}$$

1.  $A \cap B$
2.  $A \cup B$
3.  $A'$
4.  $D \cup C$
5.  $A' \cap B$
6.  $A - B$
7.  $B \cup C'$
8.  $(A \cup B)'$
9.  $A \cap D'$
10.  $A' \cap B'$
11.  $B - C$
12.  $C - B$
13.  $(A \cup D) \cup B$
14.  $(C \cup D)' \cap A$
15.  $D \cap (A - B)$
16.  $(C - D)'$
17.  $(A' \cup D)'$
18.  $A' - C$
19.  $(B' \cap D)' \cup A'$
20.  $(A \cup B) \cap (C' \cup D)$
21.  $D \times D$
22.  $C \times D$
23.  $D \times C$
24.  $n(A \times B)$
25.  $n(U \times C)$

# Set Operations and Cartesian Products I

*Contemporary Math (MAT-130)*

---

## **Solutions:**

1.  $\{1, 3\}$
2.  $\{1, 2, 3, 4, 5, 7\}$
3.  $\{5, 6, 7, 8\}$
4.  $\{4, 5, 6, 7, 8\}$
5.  $\{5, 7\}$
6.  $\{2, 4\}$
7.  $\{1, 2, 3, 4, 5, 7\}$
8.  $\{6, 8\}$
9.  $\{1, 2, 3\}$
10.  $\{6, 8\}$
11.  $\{1, 3, 5\}$
12.  $\{6, 8\}$
13.  $\{1, 2, 3, 4, 5, 7\}$
14.  $\{1, 2, 3\}$
15.  $\{4\}$
16.  $\{1, 2, 3, 4, 5\}$
17.  $\{4\}$
18.  $\{5\}$
19.  $\{1, 2, 3, 5, 6, 7, 8\}$
20.  $\{1, 2, 3, 4, 5\}$
21.  $\{(4,4), (4,5), (5,4), (5,5)\}$
22.  $\{(6,4), (6,5), (7,4), (7,5), (8,4), (8,5)\}$
23.  $\{(4,6), (4,7), (4,8), (5,6), (5,7), (5,8)\}$
24. 16
25. 24