Answer the questions in the spaces provided on the question sheets. If you run out of room for an answer, continue on a separate sheet of paper.

You may find the following definitions helpful:

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\begin{split} A \cap B &= \{ \ x \ : \ x \in A \land x \in B \ \} \\ A \cup B &= \{ \ x \ : \ x \in A \lor x \in B \ \} \\ A - B &= \{ \ x \ : \ x \in A \land x \notin B \ \} \\ A \oplus B &= \{ \ x \ : \ x \in A \oplus x \in B \ \} \\ \underline{A \land B} &= \{ \ (a, \ b) \ : \ a \in A \land b \in B \ \} \\ \overline{A} &= \{ \ x \ : \ x \notin A \ \} \end{split}
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Consider the following sets:

$$A = \{ 1, 2, 3, 4, 5 \}$$

$$B = \{ a, b, c, d, 4, 5 \}$$

$$C = \{ a, b \}$$

- 1. Using roster notation, give formal descriptions of the following sets:
 - (a) $A \cap B$
 - (b) $A \cup B$
 - (c) B-C
 - (d) C B
 - (e) $(A \cap B) \times C$
 - $*(f) \overline{A}$

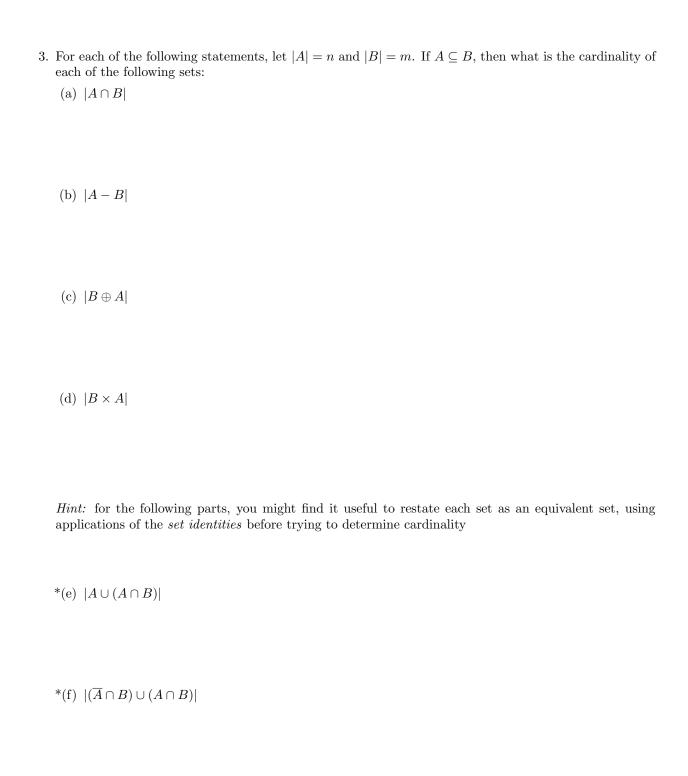
- 2. For each of the following sets, draw the corresponding Venn diagram:
 - (a) $A \cap B$

(b) $A \cup B$

(c) B-C

(d) C - B

(e) \overline{A}



*(g) $|A \cap (B \cap \overline{B})|$