

Instructions: Show all work. Answers without work can only be graded all or nothing. Partial credit is available only when work is shown.

1. Suppose that the Universal set is the set of all letters (of a single case) in the English alphabet. And suppose that set $A = \{x|x \text{ is a letter in the word Mississippi}\}$ and that set $B = \{x|x \text{ is a letter in the words North Dakota}\}$. If the set described is empty use one of the appropriate notations for the empty set.

- a. List the elements of set A

$\{M, I, S, P\}$

- b. List the elements of set B

$\{N, O, R, T, H, D, A, K\}$

- c. List the elements of $A \cup B$

$\{A, D, H, I, K, M, N, O, P, R, S, T\}$

- d. List the elements of $A \cap B$

\emptyset or $\{\}$

- e. List the elements of B' or (B^c)

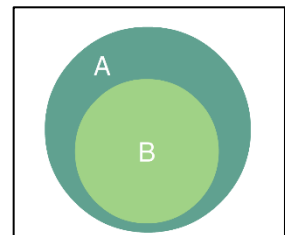
$\{B, C, E, F, G, I, J, L, M, P, Q, S, U, V, W, X, Y, Z\}$

- f. Find $|B'| = n(B')$

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2. Use a Venn diagram to illustrate each of the following situations.

- a. $B \subset A$



- b. $A' \cap B'$

