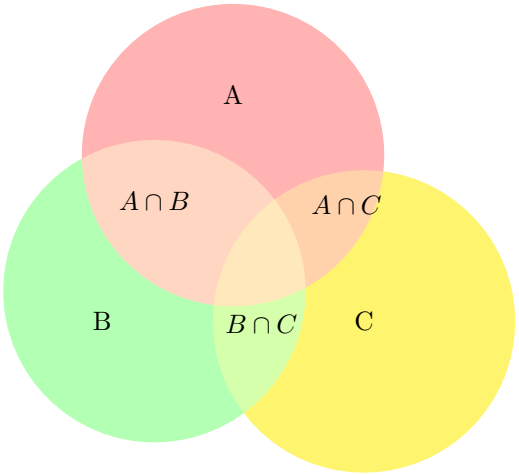
Mat 320 - Stout Name:_____

QUIZ 1: ABSTRACT ALGEBRA

Consider the Venn diagram of three arbitrary sets A, B, and C.



Problem 1. In the above, let $A = \{a, b, c, d\}$, $B = \{d, 1, c, 2\}$, $C = \{1, 2, 3, 4, 5, 6\}$, and calculate the following:

i. $A \cap B =$
ii. $A \cap C =$
iii. $B \cap C =$
iv. $A \cap B \cap C =$
v. $A \cup B =$

Problem 2. In the above let A be the subset of the real numbers give by the union $A = [-1, 0] \cup (1, 2]$. Let B be the subset of the real numbers given by $|x| < 1$. Let $C = \{1\}$.

i. Is B a subset of A?
ii. Is C a subset of A?
iii. $A \cup B =$
iv. $A \cup C =$
v. $A \cap C =$

Problem 3. Let A be the set of all real numbers, B be the interval $[-1, 1]$, and C be the interval $(1, \infty)$. Calculate the set differences below.

i. $A \setminus B =$

ii. $A \setminus C =$

iii. $B \setminus C =$

iv. $C \setminus B =$

v. $C \setminus A =$