

1/22/18 p1

$$S = \{1, 2, 3, 4, 5, 6\}$$

$$A = \{1\}, \quad B = \{1, 2\}$$

$$C = \{2, 5\}$$

$$A \cup B = \{1, 2\}$$

$$A \cup C = \{1, 2, 5\}$$

$$A \cap B = \{1\}$$

$$A^c = \{2, 3, 4, 5, 6\}$$

$$A \cup B = B \cup A \quad \underline{\text{COMMUT}}$$

$$A \cap B = B \cap A$$

$$A \cup (B \cup C) = (A \cup B) \cup C \quad \underline{\text{ASSOC}}$$

VECTOR (CROSS) PRODUCT 2

NOT ASSOCIATIVE

$$A \times (B \times C) \neq (A \times B) \times C$$

$$A \times B = -B \times A$$

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BACK TO SETS

$$(A \cup B)^c = A^c \cap B^c$$

$$A = \{1\} \quad B = \{1, 2\}$$

$$(A \cup B)^c = \{3, 4, 5, 6\}$$

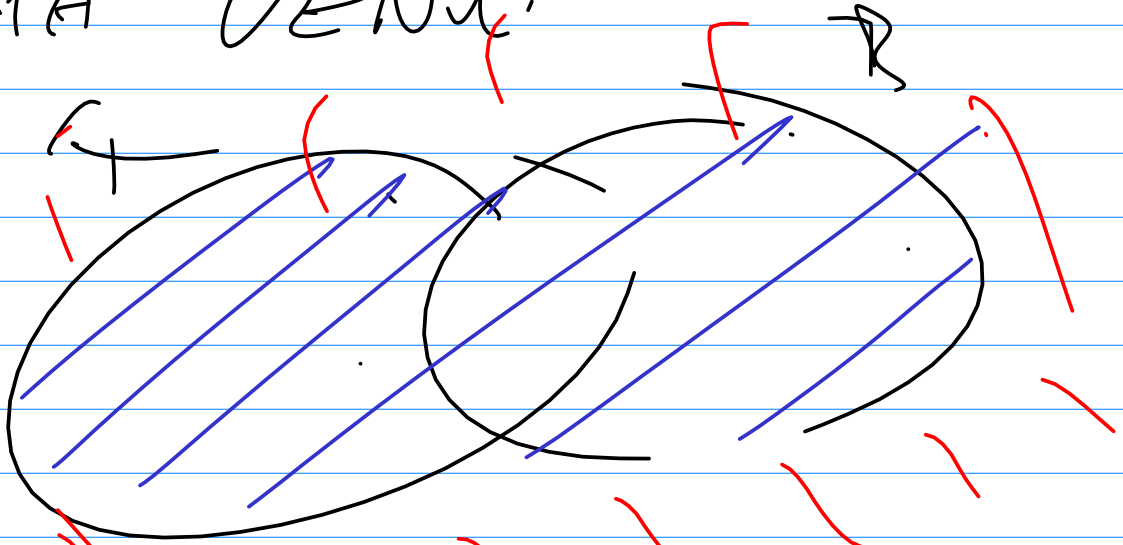
$$A^c = \{2, 3, 4, 5, 6\}$$

$$B^c = \{3, 4, 5, 6\}$$

$$A^c \cap B^c = \{3, 4, 5, 6\}$$

PROVE -  $(A \cup B)^c = A^c \cap B^c$  3

WITH VENN.



$A \cup B$

$(A \cup B)^c$

$A^c$

$B^c$

$A^c \cap B^c$

