

Worksheet 1 Review

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April 9, 2020

Question 1

a. $A^c = \{1, 3, 4, 6\}$

b. $A = U \setminus A$

c. $A^c \cap B^c = \{x \mid x \in U, x \leq 0 \text{ and } x \geq 4\}$

$$A^c \cup B^c = \{x \mid x \in U, x < 1 \text{ and } x > 2\}$$

$$(A \cap B)^c = \{x \mid x \in U, x < 1 \text{ and } x > 2\}$$

$$(A \cup B)^c = \{x \mid x \in U, x \leq 0 \text{ and } x \geq 4\}$$

Correct Solution:

$$A^c \cap B^c = \{x \mid x \in U, x \leq 0 \text{ or } x \geq 4\}$$

$$A^c \cup B^c = \{x \mid x \in U, x < 1 \text{ or } x > 2\}$$

$$(A \cap B)^c = \{x \mid x \in U, x < 1 \text{ or } x > 2\}$$

$$(A \cup B)^c = \{x \mid x \in U, x \leq 0 \text{ or } x \geq 4\}$$

It follows from above that $A^c \cap B^c = (A \cup B)^c$ and $A^c \cup B^c = (A \cap B)^c$

Question 2

a.

Question 3

Question 4