

1. Using these sets, answer the following questions:

$$U = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$$

$$A = \{0, 2, 4, 6, 8\}$$

$$B = \{3, 4, 5, 6, 7, 8\}$$

$$C = \{0, 4, 5, 7, 9\}$$

$$D = \{1, 2, 3, 4, 8, 9\}$$

$$E = \{0, 2\}$$

$$F = \{1, 9\}$$

(a) $(A \cup B)^C = \{1, 9\}$

Note: $A \cup B = \{0, 2, 3, 4, 5, 6, 7, 8\}$

(b) $B \cap D = \{3, 4, 8\}$

(c) $\phi^C \cap E = E$ or $\{0, 2\}$

Note: $\phi^C = U$

(d) $(D \cup A) \cap C = \{0, 4, 9\}$

Note: $D \cup A = \{0, 1, 2, 3, 4, 6, 8, 9\}$

(e) False. $4 \subseteq A$ since 4 is a number not a set. The statement $4 \in A$ is true.

False. $E \subseteq C$ since the set C does not have the number 2.

False. $\{3, 4\} \in B$. the statements $\{3, 4\} \subseteq B$ is true. or $3, 4 \in B$ is also true