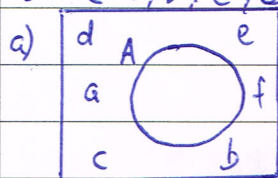
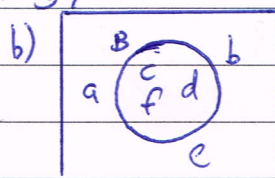


Self Exercise 4 (Loh Fa Won 05DDT17F1055)

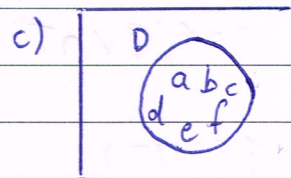
1) $U = \{a, b, c, d, e, f\}$ ($U = \{ \}$)



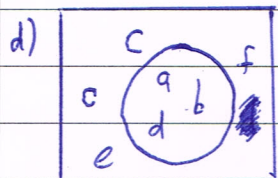
$\overline{A} = \{a, b, c, d, e, f\}$



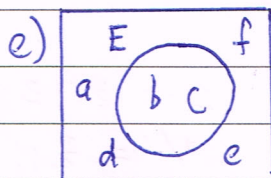
$\overline{B} = \{a, b, e\}$



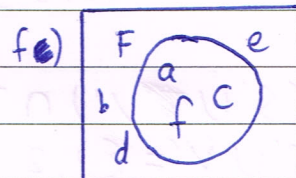
$\overline{D} = \{ \}$



$\overline{C} = \{c, e, f\}$



$\overline{E} = \{a, d, e, f\}$



$\overline{F} = \{b, d, e\}$

2) $U = \{1, 2, 3, 4, 5, 6\}$ & $A = \{2, 3, 6\}$

a) $A \cup A'$

$A = \{2, 3, 6\}$

$A' = \{1, 4, 5\}$

$A \cup A' = \{1, 2, 3, 4, 5, 6\}$

b) $\emptyset \cap A$

$\emptyset = \{ \}$

$\emptyset \cap A = \{ \}$

c) $A \cap A'$

$A \cap A' = \{ \}$

d) $U' \cap A$

$U' \cap A = \{ \}$

3) $U = \{1, 2, 3, 4, 5, 6\}$, $S = \{2, 4, 6\}$, $T = \{1, 2, 4\}$, $V = \{4, 5, 6\}$
 $\hookrightarrow \{1, 3, 5\}$ $\hookrightarrow \{3, 5, 6\}$ $\hookrightarrow \{1, 2, 3\}$

a) $S \cup (T \cap V)$

$T \cap V = \{4\}$

$S \cup (T \cap V) = \{2, 4, 6\}$

$$V \cap T' = \{5, 6\}$$

$$S \cap (V \cap T') = \{6\}$$

$$c) (S \cup T)'$$

$$S \cup T = \{1, 2, 4, 6\}$$

$$(S \cup T)' = \{3, 5\}$$

$$d) (S' \cup V') \cap T$$

$$S' \cup V' = \{1, 2, 3, 5\}$$

$$(S' \cup V') \cap T = \{1, 2\}$$

$$S' = \{1, 3, 5\}$$

$$V' = \{1, 2, 3\}$$

$$S' \cup V' = \{1, 2, 3, 5\}$$

$$(S' \cup V') \cap T = \{1, 2\}$$

$$e) (V \cap T)' \cup S$$

$$V \cap T = \{4\}$$

$$(V \cap T)' = \{1, 2, 3, 5, 6\}$$

$$(V \cap T)' \cup S = \{1, 2, 3, 4, 5, 6\}$$

$$f) (S \cup T) \cap V$$

$$S \cup T = \{1, 2, 4, 6\}$$

$$(S \cup T) \cap V = \{4, 6\}$$

$$g) (V \cup S)'$$

$$V \cup S = \{2, 4, 5, 6\}$$

$$(V \cup S)' = \{1, 3\}$$

$$h) (S' \cup V') \cup T$$

$$S' \cup V' = \{1, 2, 3, 5\}$$

$$(S' \cup V') \cup T = \{1, 2, 3, 4, 5, 6\}$$

$$i) S' \cup T \cap V'$$

$$S' \cup T = \{1, 2, 3, 4, 5\}$$

$$S' \cup T \cap V' = \{1, 2, 3\}$$

$$j) T \cup V' \cap S'$$

$$T \cup V' \cap S' = \{1, 3\}$$

$$k) V \cup (S \cap T)'$$

$$S \cap T = \{2, 4\}$$

$$(S \cap T)' = \{1, 3, 5, 6\}$$

$$V \cup (S \cap T)' = \{1, 3, 4, 5, 6\}$$