Honest Effort

3.1.2 b) False. Set A does not has a set with the element 15.

d) True. A set is always a subset itself.

e) False. B does not contain a empty set.

f) True. We have infinite amount of integer

3.1.5 a) $A = \{ x \in \mathbb{Z} : -2 \leq x \leq 2 \}$
$|A| = 5$

c) $C = \{ x \in \mathbb{Z} : -3 \leq x \leq 4 \text{ and } x \text{ is odd} \}$
$|C| = 7$

3.2.1 d) False. The element 3 is not in X but a set containing the element 3 is in X

f) False. $\{1,2\}$ is not a subset of X but $\{\{1,2\}\}$ is.

j) True, $\{2,3\}$ is a element in X

i) False, 3 is not a element in X

Honest Effort

3.3.4 $P(A) = \{ \emptyset, \{a\}, \{b\}, \{a, b\} \}$
$P(B) = \{ \emptyset, \{b\}, \{c\}, \{b, c\} \}$

c) $P(A) \cap P(B) = \{ \emptyset, \{b\} \}$

d) $P(A) \cup P(B) = \{ \emptyset, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\} \}$

3.4.4 e) $A \cup B = A \oplus B$
$A \cup B = \{ 1, 2, 3, 4, -1, -2, -3 \}$
$A \oplus B = \{ 1, 2, 3, 4, -1, -2, -3 \}$
True

h) True. $\{\{0\}\}$ is a subset of the Power set of C.

3.6.7 e) $C \times B = \{ \{ab\}, \{ac\}, \{bb\}, \{bc\}, \{db\}, \{dc\} \}$
$B \times C = \{ \{ba\}, \{bb\}, \{bd\}, \{ca\}, \{cb\}, \{cd\} \}$

$(C \times B) \cap (B \times C) = \{ \{bb\} \}$

f) $A \times B = \{ \{ab\}, \{ac\} \}$

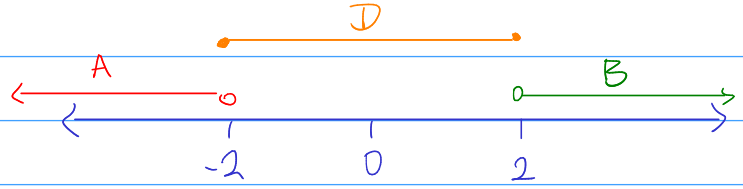
$P(A \times B) = \{ \emptyset, \{ab\}, \{ac\}, \{ab ac\} \}$

Honest Effort

3.7.3 b) $A = \{x \in \mathbb{R} : x < -2\}$

$B = \{x \in \mathbb{R} : x > 2\}$

$D = \{x \in \mathbb{R} : |x| \leq 2\}$




Yes, A, B, and D form a partition

3.7.4 a) Yes, each $A_i$ contains at least one students and no students have the same ID number. Therefore, $A_1$ to $A_9$ form a partition.

Honest Effort and Feedback Given

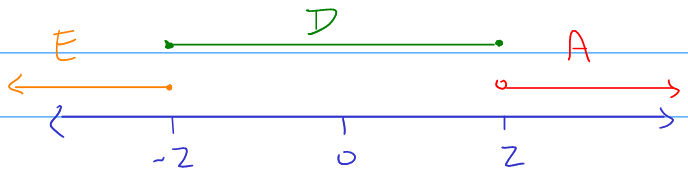
3.5.2 a) $(\bar{A} \cap C) \cup (A \cap C) = C$

| | |
|---|---|
| $(\bar{A} \cap C) \cup (A \cap C)$ | Start |
| $(C \cap \bar{A}) \cup (A \cap C)$ | Commutative law |
| $(C \cap \bar{A}) \cup (C \cap A)$ | Commutative law |
| $C \cap (\bar{A} \cup A)$ | Distributive law |
| $C \cap (A \cup \bar{A})$ | Commutative law |
| $C \cap (U)$ | Complement law |
| $C$ | Identity law |

3.7.3 c) $B = \{ x \in \mathbb{R} : x > 2 \}$

$D = \{ x \in \mathbb{R} : |x| \leq 2 \}$

$E = \{ x \in \mathbb{R} : x \leq -2 \}$




Both D and E contains $-2$,
therefore, no, B, D and E are not pairwise disjoint.