2.1 Sets

2.1 pg 125 # 1

List the members of these sets.

    c $\{x \mid x$ is the square of an integer and $x < 100\}$

    d $\{x \mid x$ is an integer such that $x^2 = 2\}$

2.1 pg 125 # 5

Determine whether each pairs of sets are equal.

    a $\{1, 3, 3, 3, 5, 5, 5, 5, 5\}, \{5, 3, 1\}$

    b $\{\{1\}\}, \{1, \{1\}\}$

    c $\emptyset, \{\emptyset\}$

2.1 pg 125 # 9

Determine whether each of these statements is true or false.

    a $0 \in \emptyset$

    b $\emptyset \in \{0\}$

    d $\emptyset \subset \{0\}$

    e $\{0\} \in \{0\}$

    f $\{0\} \subset \{0\}$

    g $\{\emptyset\} \subseteq \{\emptyset\}$

2.1 pg 125 # 11

Determine whether each of these statements is true or false.

    a $x \in \{x\}$

    b $\{x\} \subseteq \{x\}$

    c $\{x\} \in \{x\}$

    d $\{x\} \in \{\{x\}\}$

    e $\emptyset \subseteq \{x\}$

    f $\emptyset \in \{x\}$

2.1 pg 126 # 19

What is the cardinality of each of of these sets?

  b $\{\{a\}\}$

  c $\{a, \{a\}\}$

  d $\{a, \{a\}, \{a, \{a\}\}\}$

2.1 pg 126 # 21

Find the power set of each of these sets, where a and b are distinct elements.

  a $\{a\}$

  b $\{a, b\}$

2.1 pg 126 # 39

Explain why $A \times B \times C$ and $(A \times B) \times C$ are not the same.