

Set Theory: Symbols and Terminology

1. Let $A = \{-1, 0, 1, 2, 3, \}$.

(a) Find $n(A)$.

$$n(A) = 5$$

(b) Write a description for this set.

(Possible Solution) Integers between -2 and 4.

(c) Determine if the following statements are true or false.

i. $2 \in A$

True

ii. $A = \{0, 3, 2, 1, -1\}$

True

2. Let $B = \{\dots, -17, -16, -15\}$

(a) Find $n(B)$.

B is not a finite set

(b) Write a description for this set.

(Possible solution) Integers less than -14.

(c) Determine if the following statements are true or false.

i. $-2 \in B$

False

ii. $B = \{-15, -16, -17\}$

False

3. Let $F = \{32, 33, \dots, 211, 212\}$

(a) Find $n(F)$.

$$n(F) = 181$$

(b) Write a description for this set.

(Possible solution) Integers between 31 and 213.

(c) Determine if the following statements are true or false.

i. $F = \{\dots, 32, 33, \dots, 211, 212, \dots\}$

False

ii. $\frac{65}{2} \in F$

False

4. Let $S = \{2, 4, 6, 8, 10, 12, 14\}$
- (a) Find $n(S)$.
 $n(S) = 7$
 - (b) Write a description for this set.
(Possible solution) Even natural numbers less than 15.
 - (c) Determine if the following statements are true or false.
 - i. $S = \{0, 2, 4, 6, 8, 10, 12, 14\}$
False
 - ii. $S = \{2x\}$
False
5. Let $W = \{Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday\}$
- (a) Find $n(W)$.
 $n(W) = 7$
 - (b) Write a description for this set.
Days of the week
 - (c) Write a set D of all of the non-weekend days.
 $D = \{Monday, Tuesday, Wednesday, Thursday, Friday\}$
6. Rewrite the following sets in set builder notation.
- (a) $\{\dots - 64, -32, -16, -8, -4, -2, \}$
 $\{-(2^n) : n \in \mathbb{N}\}$
 - (b) $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
 $\{x : x \in \mathbb{Z}, 1 \leq x \leq 9\}$
 - (c) $\{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$
 $\{\pm n : n \text{ is a whole number}\}$