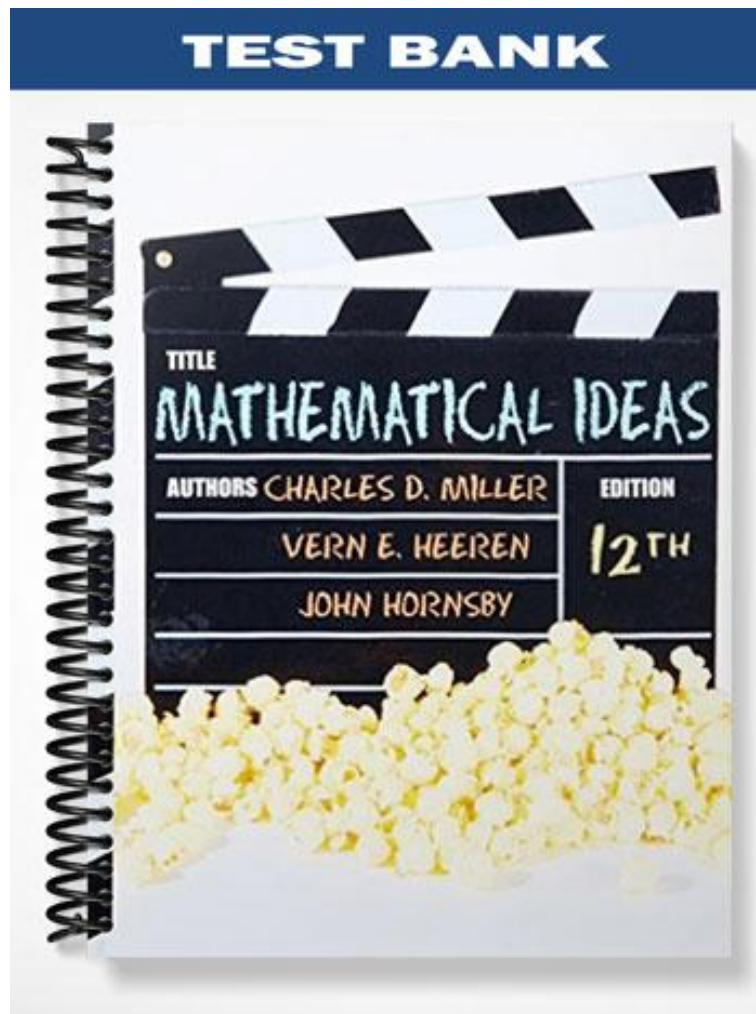


**TEST BANK**



MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

**Complete the blank with either  $\in$  or  $\notin$  to make the statement true.**

- 1)  $-8$        $\{8, 10, 12, \dots, 20\}$  1) \_\_\_\_\_  
A)  $\in$  B)  $\notin$

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

**Tell whether the statement is true or false.**

- 2)  $\{s, q, y, o, d\} = \{o, d, q, s, y\}$  2) \_\_\_\_\_

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

**Write the set in set-builder notation.**

- 3)  $\{2\}$  3) \_\_\_\_\_  
A)  $\{x\}$  B)  $\{x \mid x \text{ is a natural number}\}$   
C)  $\{x \mid x \text{ is a constant}\}$  D)  $\{x \mid x \text{ is the natural number } 2\}$

**Determine whether or not the set is well defined.**

- 4)  $\{x \mid x \text{ is a stock on the AmEx today}\}$  4) \_\_\_\_\_  
A) Well defined B) Not well defined

**Find  $n(A)$  for the set.**

- 5)  $A = \{300, 301, 302, \dots, 3000\}$  5) \_\_\_\_\_  
A)  $n(A) = 2701$  B)  $n(A) = 4$   
C)  $n(A) = 3000$  D)  $n(A) = 2700$

**Identify the set as finite or infinite.**

- 6)  $\{x \mid x \text{ is a prime number}\}$  6) \_\_\_\_\_  
A) Infinite B) Finite

**List the elements in the set.**

- 7)  $\{x \mid x \text{ is a whole number between 1 and } 5\}$  7) \_\_\_\_\_  
A)  $\{2, 3, 4, 5\}$  B)  $\{1, 2, 3, 4, 5\}$   
C)  $\{2, 3, 4\}$  D)  $\{1, 2, 3, 4\}$

**Use  $\subseteq$  or  $\not\subseteq$  in the blank to make a true statement.**

- 8)  $\{11, 35, 40\}$        $\{5, 35, 40, 50\}$  8) \_\_\_\_\_  
A)  $\subseteq$  B)  $\not\subseteq$

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

Determine whether the statement is true or false.

Let  $A = \{1, 3, 5, 7\}$

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

$C = \{5, 8\}$

$D = \{2, 5, 8\}$

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

9)  $A \neq \{7, 5, 3, 1\}$

9) \_\_\_\_\_

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Let  $U = \{1, 2, 4, 5, a, b, c, d, e\}$ . Find the complement of the set.

10)  $T = \{a, b, d, e, 1, 2, 4, 5\}$

A)  $U$

B)  $\{c, 3\}$

C)  $\{c\}$

D)  $\emptyset$

10) \_\_\_\_\_

Find the number of proper subsets of the set.

11)  $\{13, 14, 15\}$

A) 7

B) 5

C) 2

D) 6

11) \_\_\_\_\_

Decide whether the given statement is always true or not always true.

12) If  $A \subseteq B$ , then  $A \cup B = A$

A) Not always true

B) Always true

12) \_\_\_\_\_

Decide whether  $\subseteq$ ,  $\subset$ , both, or neither can be placed in the blank to make a true statement.

13)  $\{5, 6, 7\}$  \_\_\_  $\{5, 6, 7\}$

A) Neither

B)  $\subset$

C)  $\subseteq$

D) Both  $\subset$  and  $\subseteq$

13) \_\_\_\_\_

Find the Cartesian product.

14)  $A = \{12, 9, 10\}$

$B = \{14, 4\}$

Find  $A \times B$ .

A)  $\{(12, 14), (12, 4), (9, 14), (9, 4), (10, 14), (10, 4)\}$

B)  $\{(12, 14), (9, 10), (10, 14)\}$

C)  $\{(12, 14), (9, 4)\}$

D)  $\{(14, 12), (14, 9), (14, 10), (4, 12), (4, 9), (4, 10)\}$

14) \_\_\_\_\_

**Solve the problem.**

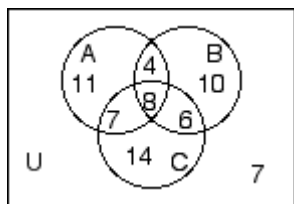
- 15) An adventure travel company has reservations from four people (Lee, Maria, Nancy, and Pablo) for its white water rafting trip on June 1st. However the company knows that any of these people may fail to show up on the day of the trip. Denoting these four people by l, m, n, p, list all possibilities for the group of people who show up on June 1st for the rafting trip (ie list all possible subsets of {l, m, n, p}). 15) \_\_\_\_\_
- A) {l}, {m}, {n}, {p}, {l, m}, {l, n}, {l, p}, {m, n}, {m, p}, {n, p}, {l, m, n}, {l, m, p}, {l, n, p}, {m, n, p}, {l, m, n, p}
- B) {l}, {m}, {n}, {p}, {l, m}, {l, n}, {l, p}, {m, n}, {m, p}, {n, p}, {l, m, n}, {l, m, p}, {l, n, p}, {m, n, p}, {m, n, l}, {l, m, n, p}
- C)  $\emptyset$ , {l}, {m}, {n}, {p}, {l, m}, {l, n}, {m, n}, {m, p}, {n, p}, {l, m, n}, {l, m, p}, {l, n, p}, {m, n, p}
- D)  $\emptyset$ , {l}, {m}, {n}, {p}, {l, m}, {l, n}, {l, p}, {m, n}, {m, p}, {n, p}, {l, m, n}, {l, m, p}, {l, n, p}, {m, n, p}, {l, m, n, p}

- 16) Mrs. Bollo's second grade class of thirty students conducted a pet ownership survey. Results of the survey indicate that 8 students own a cat, 15 students own a dog, and 5 students own both a cat and a dog. How many of the students surveyed own only a cat? 16) \_\_\_\_\_
- A) 8                                      B) 3                                      C) 18                                      D) 15

- 17) Monticello residents were surveyed concerning their preferences for candidates Moore and Allen in an upcoming election. Of the 800 respondents, 300 support neither Moore nor Allen, 100 support both Moore and Allen, and 250 support only Moore. How many residents support Moore? 17) \_\_\_\_\_
- A) 150                                      B) 350                                      C) 250                                      D) 100

**Find the cardinal number of the set.**

- 18) The numbers in the Venn Diagram below represent cardinalities. 18) \_\_\_\_\_



- Find  $n(A' \cap B' \cap C)$
- A) 21                                      B) 27                                      C) 14                                      D) 13

Let  $U = \{\text{all soda pops}\}$ ,  $A = \{\text{all diet soda pops}\}$ ,  $B = \{\text{all cola soda pops}\}$ ,  $C = \{\text{all soda pops in cans}\}$ , and  $D = \{\text{all caffeine-free soda pops}\}$ . Describe the set in words.

- 19)  $(A \cup D) \cap C'$  19) \_\_\_\_\_
- A) All non-cola soda pops not in cans
- B) All diet soda pops not in cans or all caffeine-free soda pops not in cans
- C) All non-diet, non-caffeine-free soda pops not in cans
- D) All diet, caffeine-free soda pops not in cans

**Determine whether the sets are equal, equivalent, both, or neither.**

- 20)  $\{x \mid x \text{ is a real number}\}$  and  $\{x \mid x \text{ is a rational number}\}$   
A) Neither  
B) Equivalent  
C) Both  
D) Equal

20) \_\_\_\_\_

## Answer Key

Testname: CHAPTER 2 TEST A

- 1) B
- 2) TRUE
- 3) D
- 4) A
- 5) A
- 6) A
- 7) C
- 8) B
- 9) FALSE
- 10) C
- 11) A
- 12) A
- 13) C
- 14) A
- 15) D
- 16) B
- 17) B
- 18) C
- 19) B
- 20) A