Chapter 2

1. Write the set using roster notation:
   The set of even natural numbers less than 10.
   A) {2, 4, 6, 8, 10}
   B) {2, 4, 6, 8}
   C) $\{x \mid x \in E \text{ and } x < 10\}$
   D) $\{x \mid x \in N \text{ and } x < 10\}$
   Ans: B   Section: 2-1

2. Write the set using roster notation:
   $\{x \mid x \in N \text{ and } x > 18\}$
   A) $\{x \mid x \text{ is a natural number less than 18}\}$
   B) $\{x \mid x \text{ is a natural number greater than 18}\}$
   C) {18, 19, 20, 21, . . .}
   D) {19, 20, 21, 22, . . .}
   Ans: D   Section: 2-1

3. Write the set using the descriptive method:
   {7, 14, 21, 28, 35}
   A) $\{x \mid x \text{ is a multiple of 7 less than 36}\}$
   B) $\{x \mid x \text{ is a natural number between 7 and 35}\}$
   C) The set of the first five multiples of 7.
   D) The set natural numbers between 7 and 35.
   Ans: C   Section: 2-1

4. Write the set using the descriptive method:
   {15, 16, 17, . . . , 30}
   Ans: The set of natural numbers from 15 to 30.
   Section: 2-1

5. Write the set using set-builder notation:
   The set of natural numbers greater than 11.
   A) $\{x \mid x \in N \text{ and } x > 11\}$
   B) $\{x \mid x > 11\}$
   C) {11, 12, 13, 14, . . .}
   D) {12, 13, 14, 15, . . .}
   Ans: A   Section: 2-1

6. Write the set using set-builder notation:
   {1, 3, 5, . . . , 17}
   A) $\{x \mid x \text{ is an odd natural number less than 17}\}$
   B) $\{x \mid x \text{ is an odd natural number less than 18}\}$
   C) $\{x \mid x \in N \text{ and } x < 18\}$
   D) $\{x \mid x \in O \text{ and } x < 17\}$
   Ans: B   Section: 2-1

7. List the elements in the set: {10, 15, 20, . . . , 50}.
   Ans: {10, 15, 20, 25, 30, 35, 40, 45, 50}
   Section: 2-1

8. State whether the collection is well-defined or not well-defined.
   {5, . . . }
   A) Well-defined   B) Not well-defined
   Ans: B   Section: 2-1

9. Let $A = \{6, 7, 8, 9, 10\}$.
   State whether the following statement true or false: $8 \notin A$
   A) True   B) False
   Ans: B   Section: 2-1

10. Which set is finite?
    A) $\{x \mid x \in N \text{ and } x \text{ is odd}\}$
    B) $\{x \mid x \in N \text{ and } x > 100\}$
    C) $\{x \mid x \in N \text{ and } x < 100\}$
    D) $\{2, 4, 6, 8, 10, 12, . . .\}$
    Ans: C   Section: 2-1

11. Which set is infinite?
    A)   Ø
    B) $\{x \mid x \in N \text{ and } x < 20\}$
    C) $\{x \mid x \text{ is an improper fraction}\}$
    D) $\{3, 5, 7, . . ., 99\}$
    Ans: C   Section: 2-1

12. Classify each pair of sets as equal, equivalent, or neither.
          I. {a, b, c, d, e} and {5, 4, 3, 2, 1}
         II. {1, 2, 3, . . ., 10} and {10, 9, 8, . . ., 1}
        III. {1, 3, 5} and {2, 4, 6, 8}
    A)   I. equivalent   II. equal and equivalent   III. neither
    B)   I. equal II. equal and equivalent   III. neither
    C)   I. equal II. equivalent   III. neither
    D)   I. equivalent   II. equal and equivalent   III. equivalent
    Ans: A   Section: 2-1

13. Show that the pair of sets is equivalent by using a one-to-one correspondence.
    $\{x \mid x$ is an odd natural number between 4 and 16$\}$ and
    $\{x \mid x$ is an even natural number between 9 and 21$\}$

    A) {4, 5 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16}
        ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕
        {9, 10 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21}

    B) {5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15}
        ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕
        {10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}

    C) {4, 6, 8, 10, 12, 14, 16}
        ↕ ↕ ↕ ↕ ↕ ↕ ↕
        {9, 11, 13, 15, 16, 18, 19}

    D) {5, 7, 9, 11, 13, 15}
        ↕ ↕ ↕ ↕ ↕ ↕
        {10, 12, 14, 16, 18, 20}

    Ans: D   Section: 2-1

14. Find the cardinal number for the set.
    $A = \{3, 6, 9, \ldots, 27\}$
    A) $n(A) = 27$ B) $n(A) = 3$ C) $n(A) = 9$ D) The set is infinite.
    Ans: C   Section: 2-1

15. Find the cardinal number for the set.
    $B = \{\text{five}\}$
    A) $n(B) = 0$ B) $n(B) = 1$ C) $n(B) = 4$ D) $n(B) = 5$
    Ans: B   Section: 2-1

16. Which statement is true?
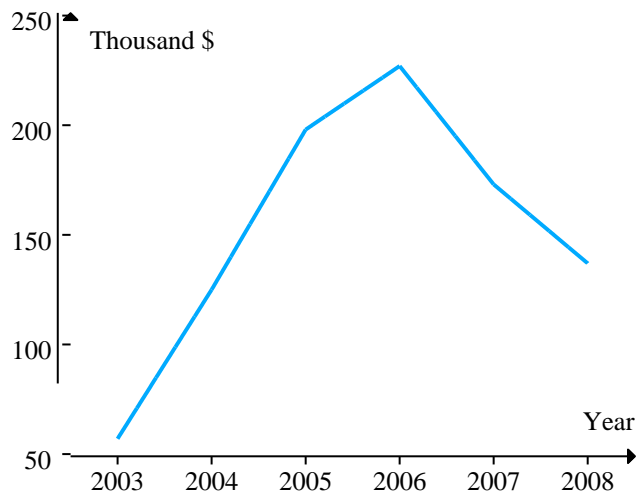   A) $\{8, 4, 1\} \neq \{4, 1, 8\}$ C) $n(\varnothing) = 0$
    B) $\varnothing = \{\varnothing\}$ D) All equivalent sets are equal.
    Ans: C   Section: 2-1

17. The graph below displays the median housing prices for all houses sold in Anywhere, US between 2003 and 2008.

Median Home Prices in Anywhere

List the set of years in which the median price was above $150,000.
A) (2003, 2004}   C) (2005, 2006, 2007}
B) (2003, 2004, 2008}   D) (2005, 2006, 2007, 2008}
Ans: C   Section: 2-1

18. Let $U = \{3, 6, 9, 12, 15, 18, 21, 24\}$ and $A = \{9, 12, 15, 21\}$. Find A'.
A) $A' = \{3, 6, 24\}$ B) $A' = \{3, 6, 18, 24\}$ C) $A' = \{0\}$ D) $A' = \varnothing$
Ans: B   Section: 2-2

19. Find all subsets of the set. $\{2, 6, 8\}$.
Ans: Ø; {2}; {6}; {8}; {2, 6}; {2, 8}; {6, 8}; {2, 6, 8}
Section: 2-2

20. Find all proper subsets of the set. {a, h, y}
A)   Ø; {a}; {h}; {y}; {a, h}; {a, y}; {h, y}; {a, h, y}
B)   Ø; {a}; {h}; {y}; {a, h}; {a, y}; {h, y}
C)   Ø; {a, h}; {a, y}; {h, y}
D)   Ø; {a, h}; {a, y}; {h, y}; {a, h, y}
Ans: B   Section: 2-2

21. True or False? $\{4\} \subseteq \{2, 4, 6, 8, 10\}$
A) True   B) False
Ans: A   Section: 2-2

22. True or False? $\{4\} \in \{2, 4, 6, 8, 10, \ldots \}$
A) True   B) False
Ans: B   Section: 2-2

23. Which statement is false?
    A) Ø ⊆ {a, b, c}   B) Ø ∈ {a, b, c}   C) Ø ⊂ {a, b, c}   D) a ∈ {a, b, c}
    Ans: B   Section: 2-2

24. Find the number of subsets the set has. {1, 2, 3, 4, 5, 6, 7, 8, 9}
    A) 9   B) 512   C) 511   D) 256
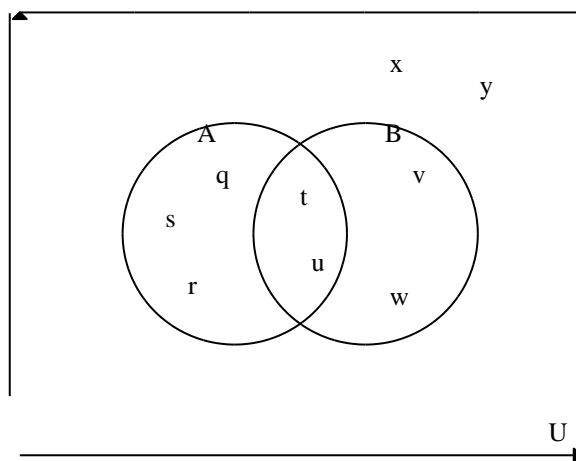   Ans: B   Section: 2-2

25. Find the number of proper subsets the set has. {*m, n, p, q, r*}
    A) 5   B) 32   C) 31   D) 30
    Ans: C   Section: 2-2

26. Use the Venn diagram and find $A \cap B$.
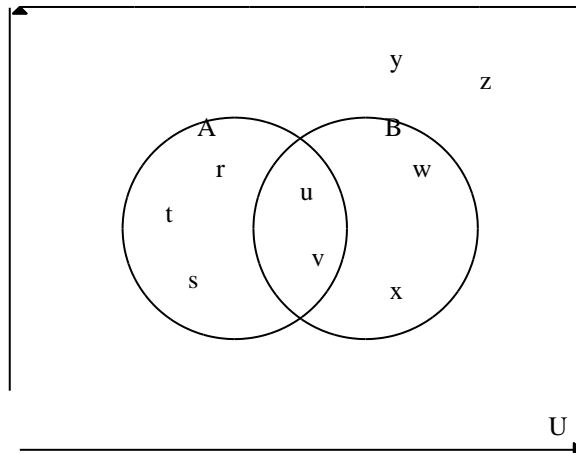

A) $A \cap B = \{q, r, s, v, w, x, y\}$ C) $A \cap B = \{q, r, s, t, u, v, w\}$
B) $A \cap B = \{q, r, s, v, w\}$ D) $A \cap B = \{t, u\}$
Ans: D   Section: 2-2

27. Use the Venn diagram and find B'.

A) $B' = \{r, s, t, y, z\}$	C) $B' = \{r, s, t, u, v, y, z\}$
B) $B' = \{r, s, t\}$	D) $B' = \{r, s, t, u, v\}$

Ans: A   Section: 2-2

28. Let $U = \{5, 10, 15, 20, 25, 30, 35, 40\}$
     $A = \{5, 10, 15, 20\}$
     $B = \{25, 30, 35, 40\}$
     $C = \{10, 20, 30, 40\}$.
Find $A \cup C$.

A) $A \cup C = \emptyset$	C) $A \cup C = \{5, 15, 30, 40\}$
B) $A \cup C = \{10, 20\}$	D) $A \cup C = \{5, 10, 15, 20, 30, 40\}$

Ans: D   Section: 2-2

29. Let $U = \{5, 10, 15, 20, 25, 30, 35, 40\}$
     $A = \{5, 10, 15, 20\}$
     $B = \{25, 30, 35, 40\}$
     $C = \{10, 20, 30, 40\}$.
Find $A \cap B$.
A) $A \cap B = \emptyset$
B) $A \cap B = \{10, 15\}$
C) $A \cap B = \{5, 10, 35, 40\}$
D) $A \cap B = \{5, 10, 15, 20, 25, 30, 35, 40\}$
Ans: A   Section: 2-2

30. Let $U = \{5, 10, 15, 20, 25, 30, 35, 40\}$
    $A = \{5, 10, 15, 20\}$
    $B = \{25, 30, 35, 40\}$
    $C = \{10, 20, 30, 40\}$.
    Find C'.
    A) $C' = \emptyset$
    B) $C' = \{10, 20, 30, 40\}$
    C) $C' = \{5, 15, 25, 35\}$
    D) $C' = \{5, 10, 15, 20, 25, 30, 35, 40\}$
    Ans: C   Section: 2-2

31. Let $U = \{5, 10, 15, 20, 25, 30, 35, 40\}$
    $A = \{5, 10, 15, 20\}$
    $B = \{25, 30, 35, 40\}$
    $C = \{10, 20, 30, 40\}$.
    Find $A' \cap (B' \cup C)$.

    A) $A' \cap (B' \cup C) = \emptyset$

    B) $A' \cap (B' \cup C) = \{30, 40\}$

    C) $A' \cap (B' \cup C) = \{10, 20, 25, 30, 35, 40\}$

    D) $A' \cap (B' \cup C) = 5, 10, 15, 20, 25, 30, 35, 40\}$

    Ans: B   Section: 2-2

32. Let $U = \{5, 10, 15, 20, 25, 30, 35, 40\}$
    $A = \{5, 10, 15, 20\}$
    $B = \{25, 30, 35, 40\}$
    $C = \{10, 20, 30, 40\}$.
    Find $B \cap C'$.
    A) $B \cap C' = \emptyset$ C) $B \cap C' = \{25, 35\}$
    B) $B \cap C' = \{5, 15\}$ D) $B \cap C' = \{30, 40\}$
    Ans: C   Section: 2-2

33. Let $U = \{5, 10, 15, 20, 25, 30, 35, 40\}$
    $A = \{5, 10, 15, 20\}$
    $B = \{25, 30, 35, 40\}$
    $C = \{10, 20, 30, 40\}$.
    Find $A \cap C$.
    A) $A \cap C = \emptyset$ C) $A \cap C = \{5, 15, 30, 40\}$
    B) $A \cap C = \{10, 20\}$ D) $A \cap C = \{5, 10, 15, 20, 30, 40\}$
    Ans: B   Section: 2-2

34. Let $U = \{5, 10, 15, 20, 25, 30, 35, 40\}$
    $A = \{5, 10, 15, 20\}$
    $B = \{25, 30, 35, 40\}$
    $C = \{10, 20, 30, 40\}$.
   Find $A' \cup C'$.
   A) $A' \cup C' = \emptyset$
   B) $A' \cup C' = \{25, 35\}$
   C) $A' \cup C' = \{5, 15, 25, 30, 35, 40\}$
   D) $A' \cup C' = \{5, 10, 15, 20, 25, 30, 35, 40\}$
   Ans: C   Section: 2-2

35. Let $U = \{3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}$
    $X = \{3, 5, 7, 9, 11, 13\}$
    $Y = \{3, 4, 5, 6, 7, 8\}$
    $Z = \{4, 6, 7, 8, 11, 12, 13\}$.
   Find $(X \cap Y) \cap Z$.

   A) $(X \cap Y) \cap Z = \emptyset$

   B) $(X \cap Y) \cap Z = \{7\}$

   C) $(X \cap Y) \cap Z = \{3, 4, 5, 6, 7, 8, 9, 11, 12, 13\}$

   D) $(X \cap Y) \cap Z = \{3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}$

   Ans: B   Section: 2-2

36. Let $U = \{1, 2, 3, \ldots\}$
    $A = \{8, 16, 24, 32, \ldots\}$
    $B = \{24, 48, 72, 96, \ldots\}$.
   Find $A \cup B$.
   A) $A \cup B = \emptyset$ B) $A \cup B = A$ C) $A \cup B = B$ D) $A \cup B = U$
   Ans: B   Section: 2-2

37. Let $U = \{s, t, u, v, w, x, y, z\}$
    $A = \{s, t, u, v\}$
    $B = \{s, u, w, y\}$.
   Find $B - A$.
   A) $B - A = \emptyset$ C) $B - A = \{w, x, y, z\}$
   B) $B - A = \{w, y\}$ D) $B - A = \{s, t, u, v, w, y\}$
   Ans: B   Section: 2-2

38. Let $A = \{6, 7, 8\}$
    $B = \{18, 24, 30\}$.
    Find $B \times A$.
    A) $B \times A = \{108, 168, 240\}$
    B) $B \times A = \{108, 126, 144, 144, 168, 192, 180, 210, 240\}$
    C) $B \times A = \{(6, 18), (6, 24), (6, 30), (7, 18), (7, 24), (7, 30), (8, 18), (8, 24), (8, 30)\}$
    D) $B \times A = \{(18, 6), (18, 7), (18, 8), (24, 6), (24, 7), (24, 8), (30, 6), (30, 7), (30, 8)\}$
    Ans: D   Section: 2-2

39. Let $X = \{1, 3\}$.
    Find $X \times X$.
    A) $X \times X = \{1, 9\}$
    B) $X \times X = \{1, 3, 9\}$
    C) $X \times X = \{(1, 3), (3, 1)\}$
    D) $X \times X = \{(1, 1), (1, 3), (3, 1), (3, 3)\}$
    Ans: D   Section: 2-2

40. Since the student union is being remodeled, there is a limited choice of foods and drinks a student can buy for a snack between classes. Students can choose none, some, or all of these items: diet soft drink, cheeseburger, fries, fruit punch, pizza, cookie. How many different selections can be made?
    A) 6   B) 36   C) 63   D) 64
    Ans: D   Section: 2-2

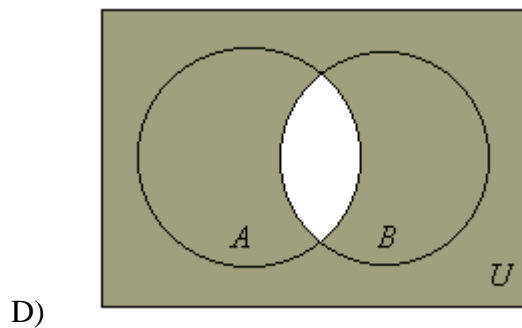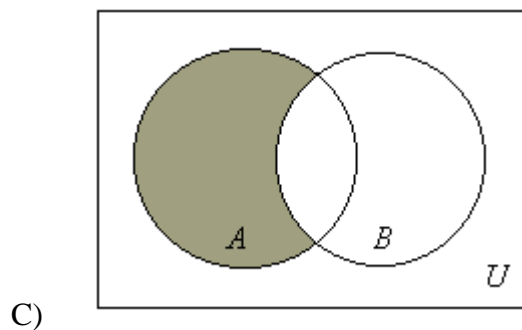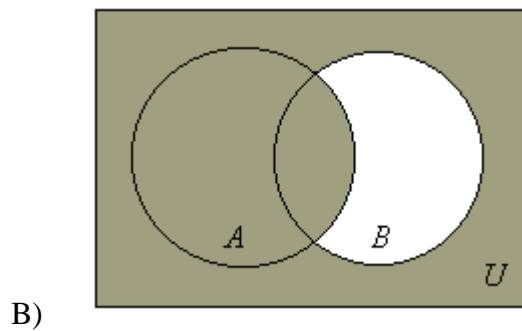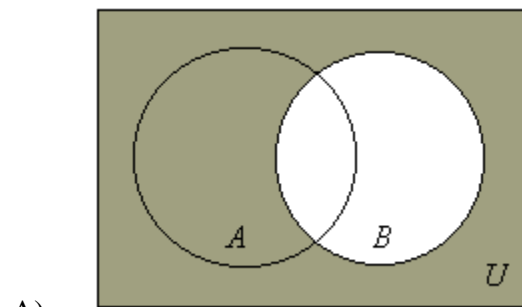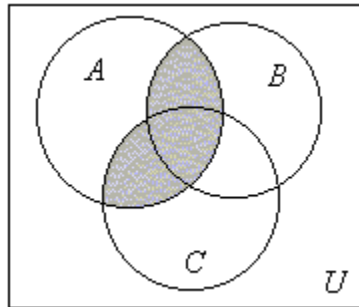41. Draw a Venn diagram and shade the sections representing $A \cup B'$.

A)

B)

C)
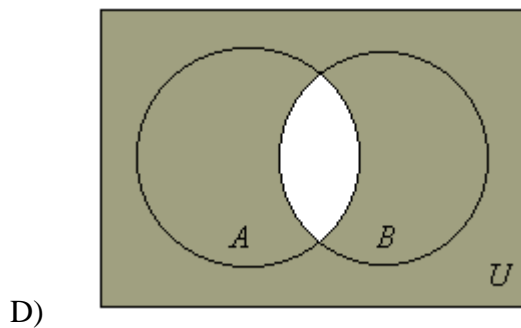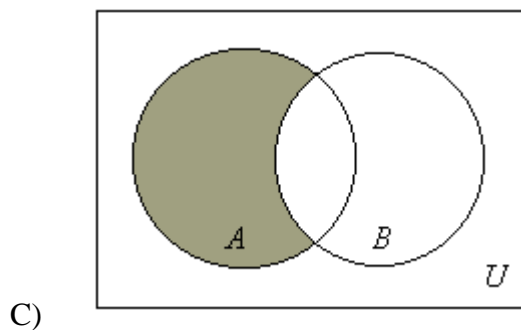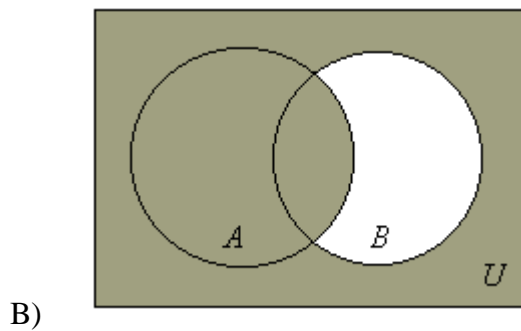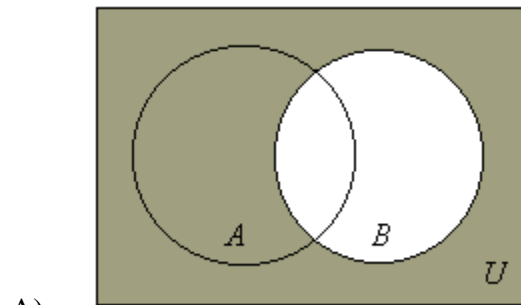
D)

Ans: B   Section: 2-3

42. Draw a Venn diagram and shade the sections representing $(A \cup B)'$.

A)

B)

C)

D)
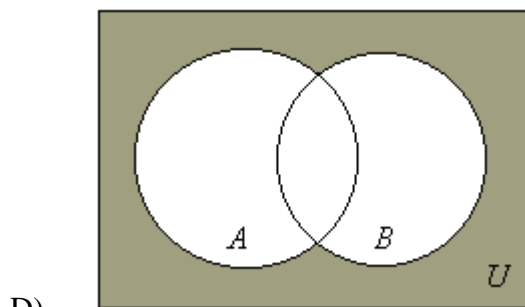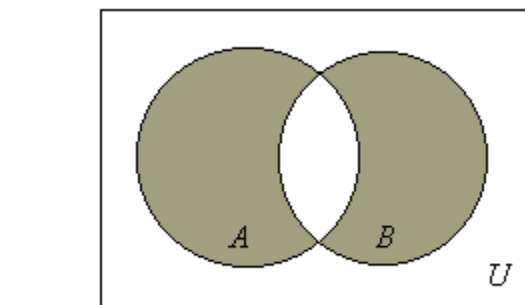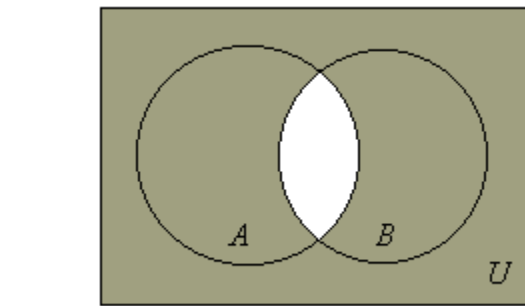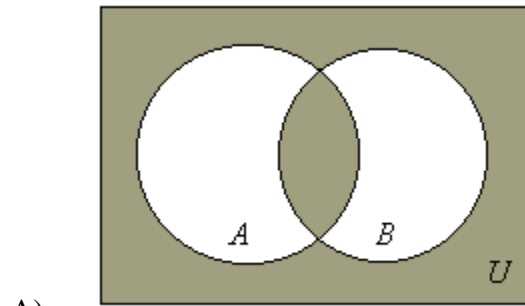
Ans: D   Section: 2-3

43. Draw a Venn diagram and shade the sections representing $A \cap B'$.
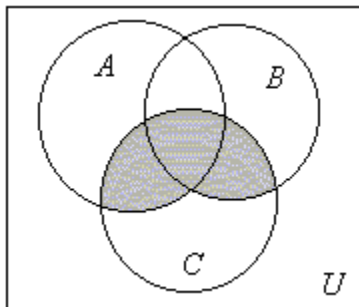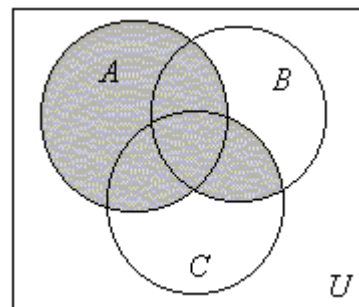
A)

B)

C)

D)

Ans: C   Section: 2-3

44. Draw a Venn diagram and shade the sections representing
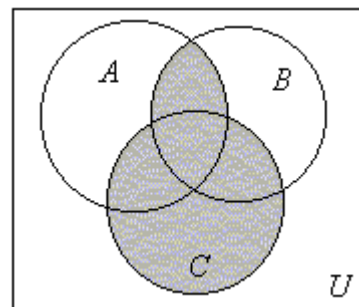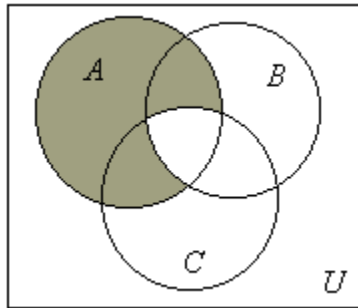$A \cap (B \cup C)$
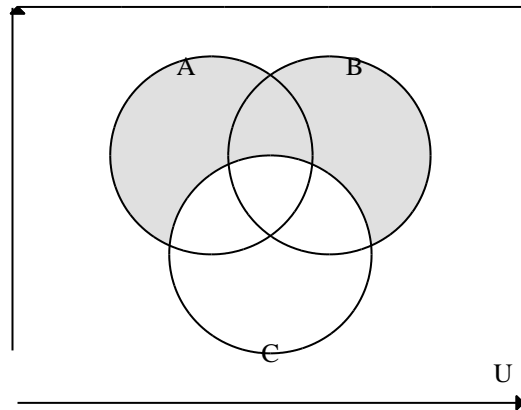
A)

B)

C)

D)

Ans: A   Section: 2-3

45. Draw a Venn diagram and shade the sections representing $A \cap (B \cap C)'$.
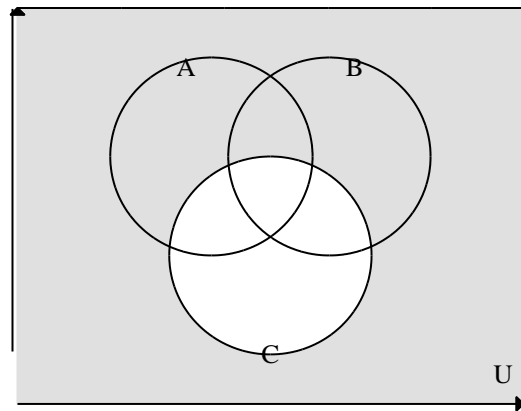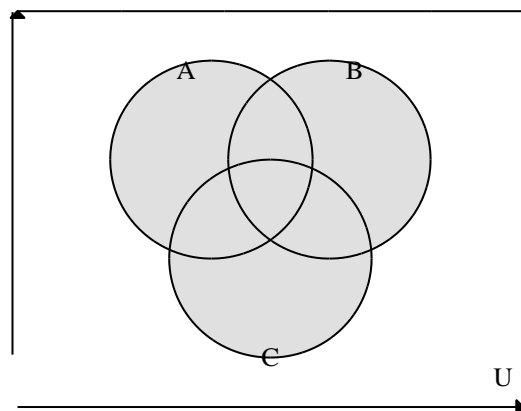

Ans:
Section: 2-3

46. Draw a Venn diagram and shade the sections representing $(B \cup C) \cup C'$.
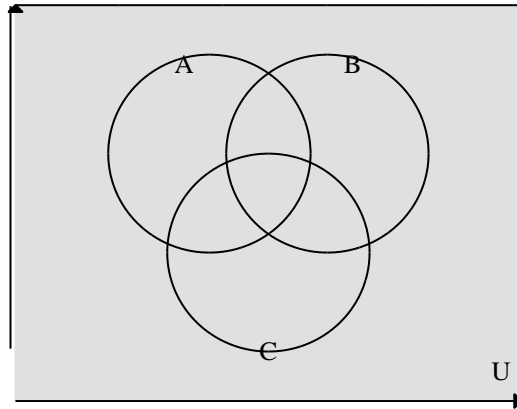

A)

B)

C)

D)
Ans: D   Section: 2-3

47. Determine whether the two sets are equal by using Venn diagrams.
    $(E \cup F)'$ and $E' \cup F'$
    A) equal   B) not equal
    Ans: B   Section: 2-3

48. Determine whether the two sets are equal by using Venn diagrams.
    $$(A \cup B') \cap C \quad \text{and} \quad (A \cap C) \cup (B' \cap C)$$
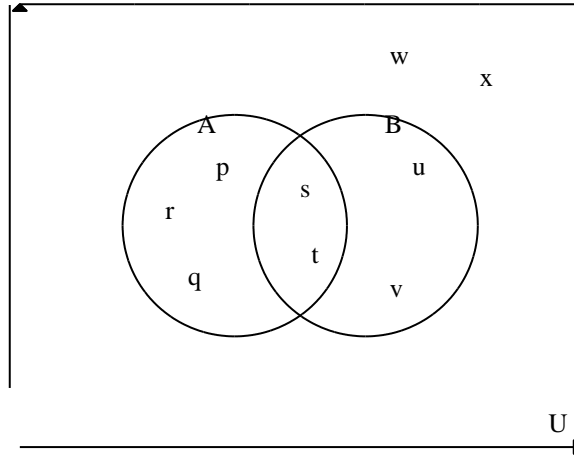
    Ans: equal
    Section: 2-3

49. Determine whether the two sets are equal by using Venn diagrams.
    $$A \cup (B \cap C)' \quad \text{and} \quad A \cap (B' \cup C')$$

    Ans: not equal
    Section: 2-3

50. Use the Venn diagram and find $n(A \cup B)$.

A) $n(A \cup B) = 2$ B) $n(A \cup B) = 5$ C) $n(A \cup B) = 7$ D) $n(A \cup B) = 9$

Ans: C   Section: 2-3

51. Let $U = \{x \mid x$ is a natural number $< 14\}$
    $A = \{x \mid x$ is an odd natural number$\}$
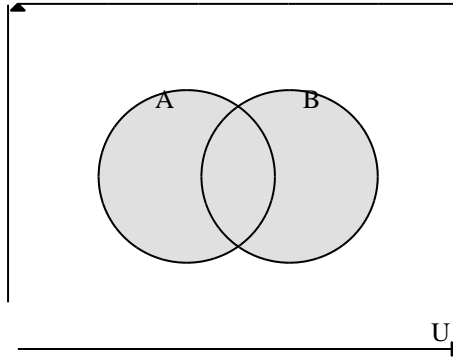 $B = \{x \mid x$ is a prime number$\}$.
Find $n(A \cup B)$.
A) $n(A \cup B) = 1$ B) $n(A \cup B) = 7$ C) $n(A \cup B) = 8$ D) $n(A \cup B) = 13$
Ans: C   Section: 2-3

52. A = {people who drive a station wagon} and B = {people who drive a manual transmission vehicle}. Draw a Venn diagram of $A \cap B$ and write a sentence describing what the set represents.

A)   People who drive a station wagon or a manual transmission vehicle.

B)   People who drive a manual transmission station wagon.
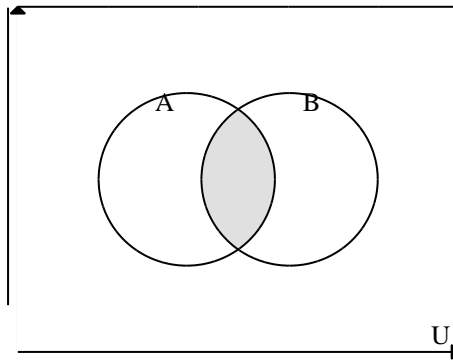
C)   People who drive a station wagon, but not a manual transmission vehicle.
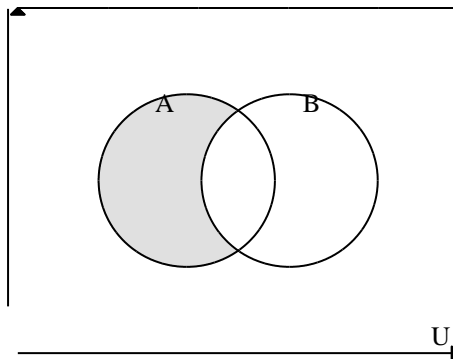
D)   People who drive a manual transmission vehicle, but not a station wagon.
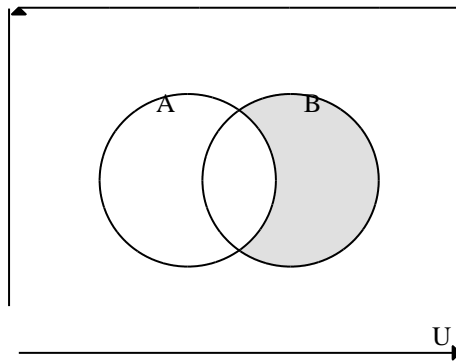
Ans: B   Section: 2-3

53. $X = \{$students running cross country$\}$, $Y = \{$students swimming$\}$, and $Z = \{$students running track$\}$. Draw a Venn diagram of $Z - (X \cup Y)$, and write a sentence describing what the set represents.

A) Students running track but not running cross country or swimming.
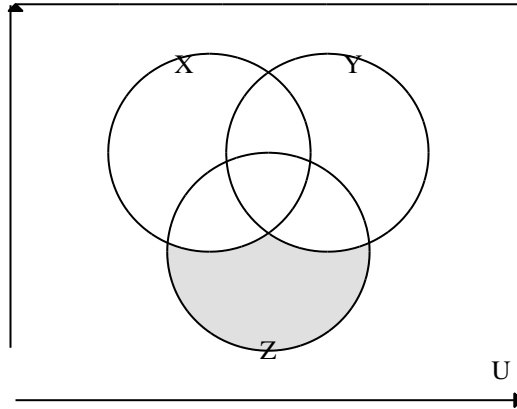
B) Students running track but not playing all three sports.
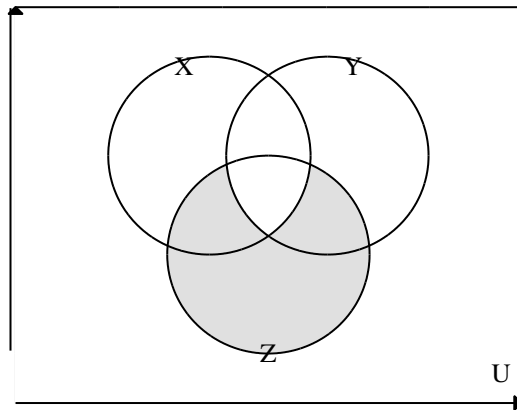
C) Students not running cross country and not swimming.

D)   Students running cross country, swimming and running track, or running track only.

Ans: A   Section: 2-3

54. The table shows the students from Genius High School with the four highest GPAs from 2005 to 2007. Write the region(s) of the Venn diagram that would include Jude. (Note set X represents 2005 top-ranked students, set Y represents 2006 top-ranked students, and set Z represents 2007 top-ranked students.)

Year	2005	2006	2007
Students	Ruth	Marisol	Ruth
	Julia	Yung	Vladamir
	Jude	Mike	Jude
	Mike	Caleb	Mike
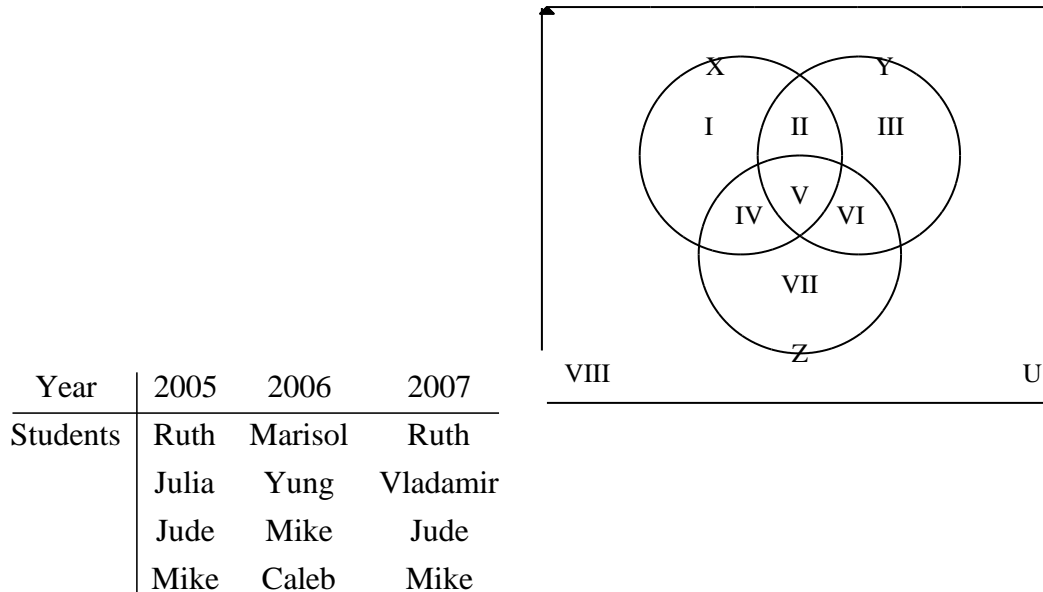
A) Region I   B) Region V   C) Region IV   D) Region VII
Ans: C   Section: 2-3

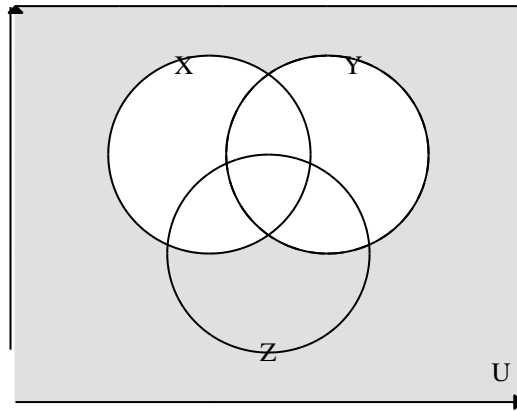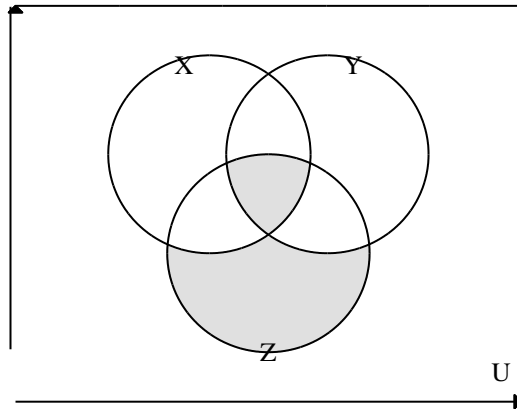55. In a survey of 25 college students, it was found that 17 were taking an English class, 13 were taking a math class, and 8 were taking both English and math. How many students were taking a math class only?
A) 5   B) 3   C) 8   D) 16
Ans: A   Section: 2-4

56. In a survey of 13 instructors, it was found that 8 liked whiteboards, 7 liked blackboards, and 3 liked both. How many instructors did not like whiteboards?
A) 4   B) 1   C) 5   D) 8
Ans: C   Section: 2-4

57. In a group of 66 children, 31 had a dog, 29 had a cat, and 13 had both a dog and a cat. How many children had neither a dog nor a cat as a pet?
A) 16   B) 19   C) 35   D) 48
Ans: B   Section: 2-4

58. One weekend, there were 82 pizzas ordered for the sophomore dorm. That weekend 11 customers ordered their pizza with just pepperoni, 16 customers ordered their pizza with just sausage, 14 ordered theirs with just onions, 18 ordered theirs with pepperoni and sausage, 9 ordered theirs with sausage and onions, 15 ordered theirs with pepperoni and onions, and 3 ordered theirs with all three items. How many customers ordered their pizza with pepperoni or sausage (or both)?
A) 15   B) 27   C) 63   D) 45
Ans: C   Section: 2-4

59. One weekend, there were 77 pizzas ordered for the sophomore dorm. That weekend 15 customers ordered their pizza with just pepperoni, 18 customers ordered their pizza with just sausage, 10 ordered theirs with just onions, 9 ordered theirs with pepperoni and sausage, 8 ordered theirs with sausage and onions, 5 ordered theirs with pepperoni and onions, and 4 ordered theirs with all three items. The remaining pizzas were cheese pizzas with no toppings. How many customers ordered at most two toppings on their pizza?
A) 25   B) 65   C) 22   D) 73
Ans: D   Section: 2-4

60. Upon examining the contents of 38 backpacks, it was found that 23 contained a black pen, 27 contained a blue pen, and 21 contained a pencil, 15 contained both a black pen and a blue pen, 12 contained both a black pen and a pencil, 18 contained both a blue pen and a pencil, and 10 contained all three items. How many backpacks contained none of the three writing instruments?
A) 15   B) 3   C) 11   D) 2
Ans: D   Section: 2-4

61. Upon examining the contents of 38 backpacks, it was found that 23 contained a black pen, 27 contained a blue pen, and 21 contained a pencil, 15 contained both a black pen and a blue pen, 12 contained both a black pen and a pencil, 18 contained both a blue pen and a pencil, and 10 contained all three items. How many backpacks contained exactly one of the three writing instruments?
A) 15   B) 3   C) 11   D) 2
Ans: C   Section: 2-4

62. Upon examining the contents of 38 backpacks, it was found that 23 contained a black pen, 27 contained a blue pen, and 21 contained a pencil, 15 contained both a black pen and a blue pen, 12 contained both a black pen and a pencil, 18 contained both a blue pen and a pencil, and 10 contained all three items.. How many backpacks contained exactly two of the three writing instruments?
A) 15   B) 3   C) 11   D) 2
Ans: A   Section: 2-4

63. Find the general term of the set. $\{5, 10, 15, 20, 25, \ldots\}$
   A) $5n$ B) $n + 4$ C) $4n + 1$ D) $6n - 1$
   Ans: A   Section: 2-5

64. Find the general term of the set. $\left\{\dfrac{1}{16}, \dfrac{1}{17}, \dfrac{1}{18}, \dfrac{1}{19}, \dfrac{1}{20}, \ldots\right\}$

   Ans: $\dfrac{1}{n+15}$
   Section: 2-5

65. The general term of the set $\left\{\dfrac{1}{21}, \dfrac{2}{21}, \dfrac{3}{21}, \dfrac{4}{21}, \dfrac{5}{21}, \ldots\right\}$ is _____.

   Ans: $\dfrac{n}{21}$
   Section: 2-5

66. Find the general term of the set. $\{11, 13, 15, 17, 19, \ldots\}$
   A) $3n + 8$ B) $11n$ C) $2n + 9$ D) $n + 10$
   Ans: C   Section: 2-5

67. Show that the set is an infinite set. $\{3, 6, 9, 12, 15, \ldots\}$
   Ans: $\{3,\quad 6,\quad 9,\quad 12,\quad 15,\quad \ldots,\quad 3n,\quad \ldots\}$
   $\quad\quad\ \updownarrow\ \ \updownarrow\ \ \updownarrow\ \ \updownarrow\ \ \updownarrow\quad\quad\quad \updownarrow$
   $\quad\ \{6,\quad 12,\quad 18,\quad 24,\quad 30,\quad \ldots,\quad 6n,\quad \ldots\}$
   Section: 2-5

68. Show that the set is an infinite set. $\{14, 18, 22, 26, 30, \ldots\}$
   Ans: $\{14,\quad 18,\quad 22,\quad 26,\quad 30,\quad \ldots,\quad 4n+10,\quad \ldots\}$
   $\quad\quad\ \ \updownarrow\ \ \updownarrow\ \ \updownarrow\ \ \updownarrow\ \ \updownarrow\quad\quad\quad\quad \updownarrow$
   $\quad\ \{18,\quad 26,\quad 34,\quad 42,\quad 50,\quad \ldots,\quad 8n+10,\quad \ldots\}$
   Section: 2-5

69. Show that the set is an infinite set. $\left\{\dfrac{2}{1}, \dfrac{2}{2}, \dfrac{2}{3}, \dfrac{2}{4}, \dfrac{2}{5}, \ldots\right\}$

   Ans: $\left\{\dfrac{2}{1},\quad \dfrac{2}{2},\quad \dfrac{2}{3},\quad \ldots,\quad \dfrac{2}{n},\quad \ldots\right\}$
   $\quad\quad\ \updownarrow\ \ \updownarrow\ \ \updownarrow\quad\quad\ \ \updownarrow$
   $\quad\ \left\{\dfrac{2}{2},\quad \dfrac{2}{3},\quad \dfrac{2}{4},\quad \ldots,\quad \dfrac{2}{n+1},\quad \ldots\right\}$
   Section: 2-5

70. Show that the set is an infinite set. $\left\{\dfrac{1}{10}, \dfrac{1}{100}, \dfrac{1}{1,000}, \dfrac{1}{10,000}, \dots\right\}$

Ans: $\left\{\dfrac{1}{10}, \quad \dfrac{1}{100}, \quad \dots, \quad \dfrac{1}{10^n}, \quad \dots\right\}$

$\quad\quad\quad \updownarrow \quad\quad\quad \updownarrow \quad\quad\quad\quad \updownarrow$

$\left\{\dfrac{1}{100}, \quad \dfrac{1}{10,000}, \quad \dots, \quad \dfrac{1}{10^{2n}}, \quad \dots\right\}$

Section: 2-5