

Sets

Write the set in set-builder notation.

- 1) {2, 4, 6, 8} 1) _____
A) {2, 4, 6, 8}
B) {x | x is any even integer less than 10}
C) {x | x is any even natural number}
D) {x | x is an even natural number less than 10}

List the elements in the set.

- 2) {x | x is an integer between -2 and 2} 2) _____
A) {-1, 0, 1} B) {-2, -1, 0, 1} C) {-2, -1, 0, 1, 2} D) {-1, 0, 1, 2}

Identify the set as finite or infinite.

- 3) {7, 8, 9, ..., 28} 3) _____
A) Finite B) Infinite

- 4) {x | x is an odd counting number} 4) _____
A) Infinite B) Finite

Find $n(A)$ for the set.

- 5) $A = \{x \mid x \text{ is a second in a minute}\}$

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

- 6) $2 \underline{\quad} \{11, 10, 9, 8\}$ 6) _____
A) \notin B) \in

Find the number of subsets of the set.

- 7) {15, 16, 17}

Use \subseteq or \subset in the blank to make a true statement.

- 8) {12, 39, 44} $\underline{\quad}$ {9, 39, 44, 54}

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

- 9) $\emptyset \underline{\quad} \{7, 15, 24, 34\}$ 9) _____
A) Both \subset and \subseteq B) Neither C) \subseteq D) \subset

Find the number of proper subsets of the set.

- 10) {poetry, drama, speech, art, film} 10) _____
A) 31 B) 32 C) 24 D) 16

List the elements in the set .

Let $U = \{q, r, s, t, u, v, w, x, y, z\}$

$A = \{q, s, u, w, y\}$

$B = \{q, s, y, z\}$

$C = \{v, w, x, y, z\}$.

11) $B \cap C$

A) $\{y\}$

C) $\{q, s, v, w, x, y, z\}$

B) $\{y, z\}$

D) $\{w, y, z\}$

11) _____

12) $(A \cap B)'$

A) $\{r, t, u, v, w, x, z\}$

C) $\{q, s, t, u, v, w, x, y\}$

B) $\{t, v, x\}$

D) $\{s, u, w\}$

12) _____

13) $C' \cup A'$

A) $\{w, y\}$

C) $\{s, t\}$

B) $\{q, r, s, t, u, v, x, z\}$

D) $\{q, s, u, v, w, x, y, z\}$

13) _____

14) $C - A$

A) $\{w, y\}$

B) $\{v, x, z\}$

C) $\{q, s, u\}$

D) $\{q, s, u, v, x, z\}$

14) _____

15) $A \cup (B \cap C)$

A) $\{q, s, u, w, y, z\}$

B) $\{q, r, w, y, z\}$

C) $\{q, y, z\}$

D) $\{q, w, y\}$

15) _____

Find the Cartesian product.

16) $A = \{0\}$

$B = \{20, 30, 40\}$

Find $B \times A$.

A) $\{0\}$

B) $\{(20, 0), (30, 0), (40, 0)\}$

C) $\{0, 0, 0\}$

D) $\{(0, 20), (0, 30), (0, 40)\}$

16) _____

For the given sets, construct a Venn diagram and place the elements in the proper region.

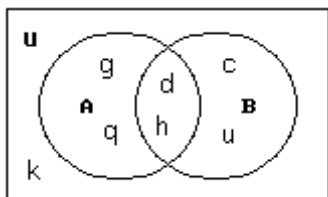
17) Let $U = \{c, d, g, h, k, u, q\}$

$A = \{d, h, g, q\}$

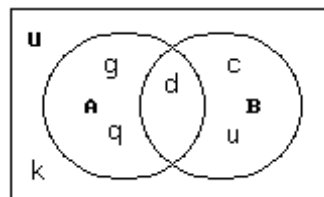
$B = \{c, d, h, u\}$

17) _____

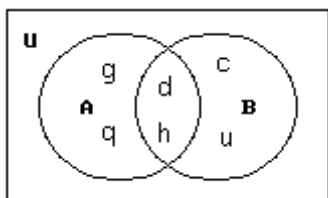
A)



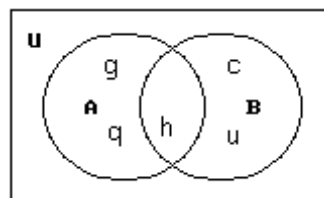
B)



C)



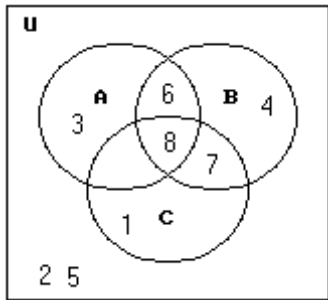
D)



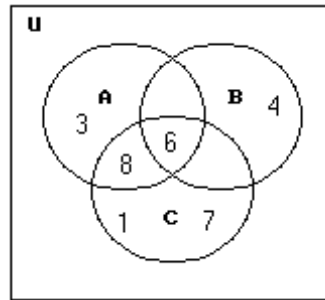
- 18) Let $U = \{1, 2, 3, 4, 5, 6, 7, 8\}$
 $A = \{3, 6, 8\}$
 $B = \{4, 6\}$
 $C = \{1, 6, 7, 8\}$

18) _____

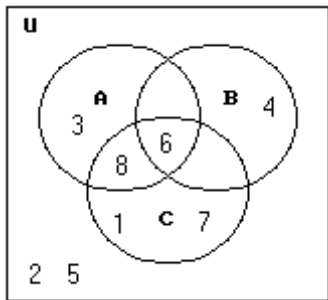
A)



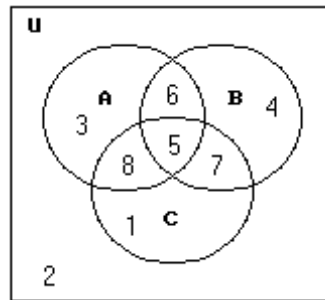
B)



C)



D)



Solve the problem.

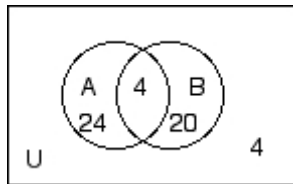
- 19) Monticello residents were surveyed concerning their preferences for candidates Moore and Allen in an upcoming election. Of the 800 respondents, 300 support neither Moore nor Allen, 100 support both Moore and Allen, and 250 support only Moore. How many residents support Moore or Allen?
 A) 100 B) 500 C) 300 D) 400

19) _____

Find the cardinal number of the set.

- 20) The numbers in the Venn Diagram below represent cardinalities.

20) _____

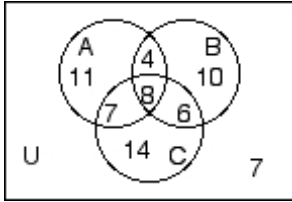


Find $n(A \cup B)$.

- A) 48 B) 24 C) 4 D) 52

21) The numbers in the Venn Diagram below represent cardinalities.

21) _____



Find $n(B \cup C)$

A) 42

B) 14

C) 49

D) 60

22) Given: $n(U) = 60$

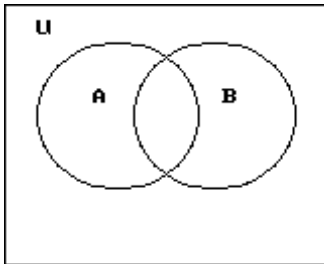
$n(A) = 35$

$n(B) = 20$

$n(A \cap B) = 4$

Find $n(A \cup B)'$.

22) _____



A) 5

B) 55

C) 51

D) 9

23) Given:

$n(U) = 213$

$n(A) = 72$

$n(B) = 92$

$n(A \cap B) = 31$

$n(A \cap C) = 34$

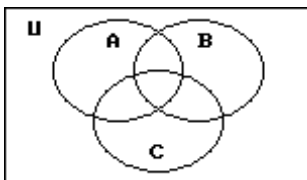
$n(A \cap B \cap C) = 16$

$n(A' \cap B \cap C') = 45$

$n(A' \cap B' \cap C') = 54$

Find $n(C)$.

23) _____



A) 26

B) 42

C) 76

D) 44

Find the cardinal number of the indicated set. Use the cardinal number formula.

24) If $n(A) = 7$, $n(B) = 15$ and $n(A \cap B) = 5$, what is $n(A \cup B)$?

A) 17

B) 22

C) 16

D) 18

24) _____

Solve the problem.

- 25) In a survey of 280 people, a travel company asked _____ people about places they plan to visit in the next 5 years. The results were as follows:
- 48 plan to visit Europe
 - 58 plan to visit Latin America
 - 34 plan to visit Asia
 - 14 plan to visit Europe and Latin America
 - 12 plan to visit Latin America and Asia
 - 11 plan to visit Europe and Asia
 - 4 plan to visit all three

How many people plan to visit exactly two of these places?

- A) 18 B) 37 C) 25 D) 29

Answer Key

Testname: REVIEW01

- 1) D
- 2) A
- 3) A
- 4) A
- 5) $n(A) = 60$
- 6) A
- 7) 8
- 8) \neq
- 9) A
- 10) A
- 11) B
- 12) A
- 13) B
- 14) B
- 15) A
- 16) B
- 17) A
- 18) C
- 19) B
- 20) A
- 21) C
- 22) D
- 23) C
- 24) A
- 25) C