

Name _____

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

Decide whether the argument is an example of inductive or deductive reasoning.

- 1) The last four mayors were Democrats. Therefore, the next will be a Democrat. 1) _____
 A) Inductive B) Deductive

- 2) Fresh fruit costs more in winter. This is January. Therefore these fresh strawberries will cost more. 2) _____
 A) Inductive B) Deductive

- 3) Every coach knows his sport well. John Madden is a football coach. Therefore John Madden knows football well. 3) _____
 A) Inductive B) Deductive

Determine the most probable next term in the sequence.

- 4) 5, 12, 19, 26, 33 4) _____
 A) 47 B) 39 C) 38 D) 40

- 5) 35, 29, 23, 17, 11 5) _____
 A) 0 B) 5 C) 6 D) 2

Use inductive reasoning to predict the next equation.

- 6) $36 - 34 + 32 - 30 = 37 - 35 + 33 - 31$ 6) _____
 $46 - 44 + 42 - 40 = 47 - 45 + 43 - 41$

- A) $56 - 54 + 52 - 50 = 57 - 55 + 53 - 51$ B) $56 - 54 - 52 + 50 = 57 - 55 + 53 - 51$
 C) $56 + 54 - 52 + 50 = 57 + 55 - 53 + 51$ D) $56 + 54 - 52 - 50 = 57 + 55 - 53 + 51$

- 7) $2 \times 4 = 3 \times 5 - 7$ 7) _____
 $4 \times 6 = 5 \times 7 - 11$

- A) $6 \times 8 = 9 \times 11 - 15$ B) $6 \times 8 = 7 \times 9 - 15$
 C) $6 \times 8 = 7 \times 9 + 13$ D) $6 \times 8 = 7 \times 9 - 13$

- 8) $3 \times 3 = 9$ 8) _____
 $33 \times 33 = 1089$
 $333 \times 333 = 110,889$

- A) $3333 \times 3333 = 112,889$ B) $3333 \times 3333 = 111,889$
 C) $3333 \times 3333 = 11,108,889$ D) $333 \times 3333 = 11,108,889$

Use the method of successive differences to determine the next term in the sequence.

- 9) 9, 25, 43, 63, 85, ... 9) _____
 A) 111 B) 110 C) 109 D) 107

- 10) 14, 25, 66, 137, 238, ... 10) _____
 A) 398 B) 369 C) 399 D) 339

Use the appropriate formula to find the indicated figurate number.

- 11) the 13th square number
A) $S_{13} = 196$ B) $S_{13} = 91$ C) $S_{13} = 169$ D) $S_{13} = 26$ 11) _____

Find $n(A)$ for the set.

- 12) $A = \{0, 2, 4, 6, 8\}$
A) $n(A) = 4$ B) $n(A) = 2$ C) $n(A) = 5$ D) $n(A) = 8$ 12) _____

- 13) $A = \{700, 701, 702, \dots, 7000\}$
A) $n(A) = 6301$ B) $n(A) = 4$ C) $n(A) = 7000$ D) $n(A) = 6300$ 13) _____

- 14) $A = \{x \mid x \text{ is a month in the year}\}$
A) $n(A) = 24$ B) $n(A) = 52$ C) $n(A) = 12$ D) $n(A) = 1$ 14) _____

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

- 15) -5 ___ $\{5, 7, 9, \dots, 17\}$
A) \in B) \notin 15) _____

- 16) $\{7\}$ ___ $\{\{4\}, \{5\}, \{6\}, \{7\}, \{8\}\}$
A) \notin B) \in 16) _____

Tell whether the statement is true or false.

- 17) $10 \in \{20, 30, 40, 50, 60\}$
A) True B) False 17) _____

- 18) $\{2, 10, 15\} = \{0, 2, 10, 15\}$
A) True B) False 18) _____

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

- 19) $\{4, 5, 6\}$ ___ $\{3, 4, 5, 6\}$
A) \subseteq B) Both \subset and \subseteq C) Neither D) \subset 19) _____

- 20) \emptyset ___ $\{4, 19, 28, 43\}$
A) Neither B) \subseteq C) Both \subset and \subseteq D) \subset 20) _____

- 21) $\{4, 5, 6\}$ ___ $\{4, 5, 6\}$
A) \subset B) \subseteq C) Both \subset and \subseteq D) Neither 21) _____

Find the number of proper subsets of the set.

- 22) $\{5, 6, 7\}$
A) 2 B) 5 C) 6 D) 7 22) _____

- 23) $\{x \mid x \text{ is an even number between 17 and 29}\}$
A) 64 B) 63 C) 32 D) 28 23) _____

- 24) $\{0\}$
A) 2 B) 4 C) 1 D) 0 24) _____

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

25) $A = \{2, 4, b, d\}$

A) $\{1, 3, 5, a, c, e\}$

C) $\{1, 5, a, c, e\}$

B) $\{1, 2, 4, 5, a, b, c, d, e\}$

D) $\{1, 5, a, e\}$

25) _____

26) $S = \{1, 5, e, d, a\}$

A) $\{2, 3, 4, b, c\}$

B) $\{2, 4, b, c\}$

C) $\{1, 2, 4, b, c\}$

D) $\{2, 3, 4, a, b, c\}$

26) _____

List the elements in the set .

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

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

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

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

27) $A \cup C$

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

C) $\{w, y\}$

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

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

27) _____

28) $B \cap C$

A) $\{y, z\}$

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

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

D) $\{y\}$

28) _____

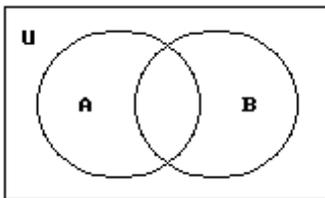
For the given sets, construct a Venn diagram and place the elements in the proper region.

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

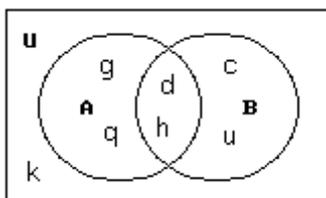
$A = \{d, h, g, q\}$

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

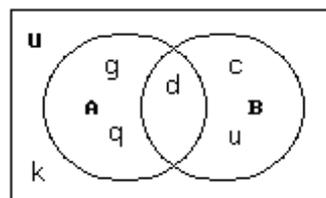
29) _____



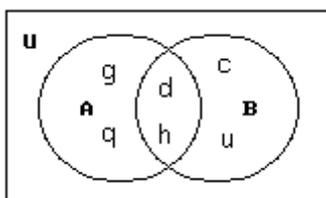
A)



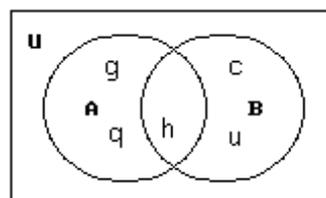
B)



C)

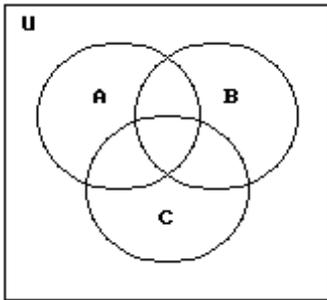


D)

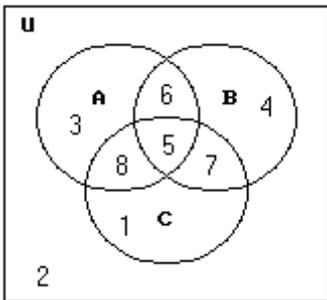


30) Let $U = \{1, 2, 3, 4, 5, 6, 7, 8\}$
 $A = \{3, 6, 8\}$
 $B = \{4, 6\}$
 $C = \{1, 6, 7, 8\}$

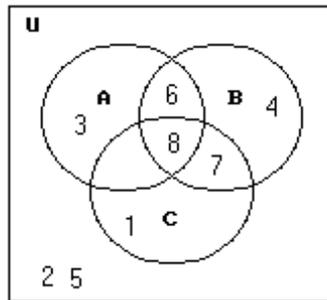
30) _____



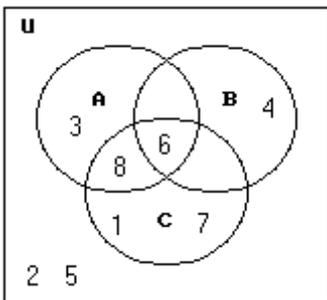
A)



B)



C)



D)

