

Name

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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.
 A) Inductive B) Deductive

1) A

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

2) B

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

3) A**Determine the most probable next term in the sequence.**

- 4) 5, 12, 19, 26, 33
 A) 47

B) 39

C) 38

D) 40

4) D

- 5) 35, 29, 23, 17, 11
 A) 0

B) 5

C) 6

D) 2

5) B**Use inductive reasoning to predict the next equation.**

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

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

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

6) A

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

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

- B) $6 \times 8 = 7 \times 9 - 15$
 D) $6 \times 8 = 7 \times 9 - 13$

7) B

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

- A) $3333 \times 3333 = 112,889$
 C) $3333 \times 3333 = 11,108,889$

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

8) C**Use the method of successive differences to determine the next term in the sequence.**

- 9) 9, 25, 43, 63, 85, ...
 A) 111

B) 110

C) 109

D) 107

9) C

- 10) 14, 25, 66, 137, 238, ...
 A) 398

B) 369

C) 399

D) 339

10) B

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) C

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) C

13) $A = \{700, 701, 702, \dots, 7000\}$

A) $n(A) = 6301$

B) $n(A) = 4$

C) $n(A) = 7000$

D) $n(A) = 6300$

13) D

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) D

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

15) $-5 \underline{\hspace{1cm}} \{5, 7, 9, \dots, 17\}$

A) $\in$

B) $\notin$

15) B

16) $\{7\} \underline{\hspace{1cm}} \{\{4\}, \{5\}, \{6\}, \{7\}, \{8\}\}$

A) $\notin$

B) $\in$

16) A

Tell whether the statement is true or false.

17) $10 \in \{20, 30, 40, 50, 60\}$

A) True

B) False

17) B

18) $\{2, 10, 15\} = \{0, 2, 10, 15\}$

A) True

B) False

18) A

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

19) $\{4, 5, 6\} \underline{\hspace{1cm}} \{3, 4, 5, 6\}$

A) $\subseteq$

B) Both $\subset$ and $\subseteq$

C) Neither

D) $\subset$

19) B

20) $\emptyset \underline{\hspace{1cm}} \{4, 19, 28, 43\}$

A) Neither

B) $\subseteq$

C) Both $\subset$ and $\subseteq$

D) $\subset$

20) A

21) $\{4, 5, 6\} \underline{\hspace{1cm}} \{4, 5, 6\}$

A) $\subset$

B) $\subseteq$

C) Both $\subset$ and $\subseteq$

D) Neither

21) B

Find the number of proper subsets of the set.

22) $\{5, 6, 7\}$

A) 2

B) 5

C) 6

D) 7

22) A

23) $\{x \mid x \text{ is an even number between 17 and 29}\}$

A) 64

B) 63

C) 32

D) 28

23) D

24) $\{0\}$

A) 2

B) 4

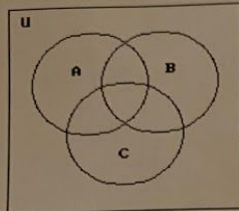
C) 1

D) 0

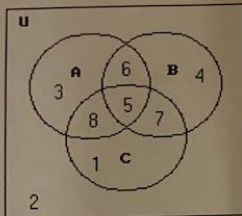
24) D

30)

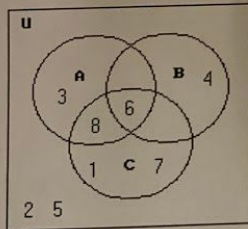
- Let $U = \{1, 2, 3, 4, 5, 6, 7, 8\}$
 $A = \{3, 6, 8\}$
 $B = \{4, 6\}$
 $C = \{1, 6, 7, 8\}$



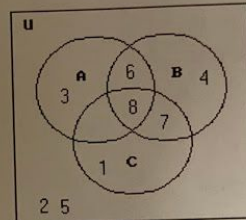
A)



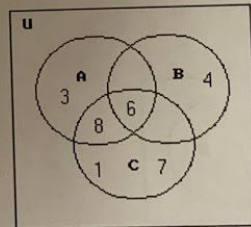
C)



B)



D)



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) C

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) A

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) B

28) $B \cap C$

A) $\{y, z\}$

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

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

D) $\{y\}$

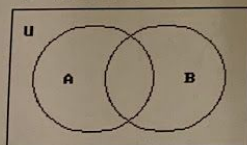
28) A

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

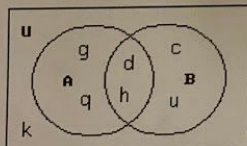
29) Let $U = \{c, d, g, h, k, u, q\}$

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

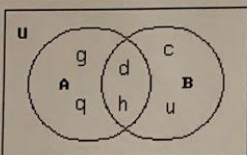
$B = \{c, d, h, u\}$



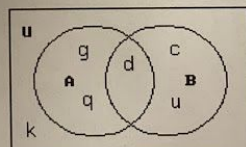
A)



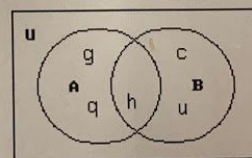
C)



B)



D)



29) A