

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

Use set notation, and list all the elements of the set.

1) $\{19, 20, 21, \dots, 25\}$

A) $\{19, 20, 22, 24, 25\}$

C) $\{19, 20, 21, 22, 23, 24, 25\}$

B) $\{19, 21, 23, 25\}$

D) $\{19, 20, 21, 22, 23, 24, 25, 26\}$

Answer: C

2) $\left\{1, \frac{1}{3}, \frac{1}{9}, \dots, \frac{1}{243}\right\}$

A) $\left\{1, \frac{1}{3}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \frac{1}{8}\right\}$

C) $\left\{1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \frac{1}{243}\right\}$

B) $\left\{1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \frac{1}{729}, \frac{1}{19,683}\right\}$

D) $\left\{1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \frac{1}{81}, \frac{1}{243}\right\}$

Answer: D

3) $\{15, 22, 29, \dots, 64\}$

A) $\{15, 22, 29, 36, 43, 50, 57, 64\}$

C) $\{15, 22, 29, 37, 44, 51, 58, 65\}$

B) $\{15, 22, 28, 35, 42, 49, 56, 63\}$

D) $\{15, 22, 29, 36, 43\}$

Answer: A

4) $\{82, 77, 72, \dots, 32\}$

A) $\{82, 77, 72, 67, 62, 57, 52, 47, 42, 37, 32\}$

C) $\{82, 77, 72, 62, 52, 42, 32\}$

B) $\{82, 77, 72, 66, 61, 56, 51, 46, 41, 36, 31\}$

D) $\{82, 87, 92, 97, 102, 107, 112, 117, 122, 127, 132\}$

Answer: A

5) The first four natural numbers.

A) $\{0, 2, 4, 6\}$

B) $\{1, 2, 3, 4\}$

C) $\{0, 1, 2, 3\}$

D) $\{0, 1, 2, 3, 4\}$

Answer: B

6) The natural numbers between 3 and 5.

A) $\{3, 5\}$

B) $\{4\}$

C) $\{3, 4, 5\}$

D) $\{0, 1, 2, 3\}$

Answer: B

Identify the set as finite or infinite.

7) $\{6, 7, 8, \dots, 11\}$

A) finite

B) infinite

Answer: A

8) $\{3, 5, 7, \dots\}$

A) finite

B) infinite

Answer: B

9) $\left\{1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \dots\right\}$

A) infinite

B) finite

Answer: A

- 10) $\{x \mid x \text{ is a natural number larger than } 1\}$
 A) infinite B) finite
 Answer: A
- 11) $\{x \mid x \text{ is a fraction between } 0 \text{ and } 1\}$
 A) finite B) infinite
 Answer: B
- 12) $\{x \mid x \text{ is an even natural number}\}$
 A) finite B) infinite
 Answer: B
- 13) $\{x \mid x \text{ is a person alive now}\}$
 A) infinite B) finite
 Answer: B

Insert \in or \notin in the blank to make the statement is true.

- 14) $10 \underline{\quad} \{7, 8, 9, 10\}$
 A) \notin B) \in
 Answer: B
- 15) $10 \underline{\quad} \{6, 9, 12, 10, 8\}$
 A) \in B) \notin
 Answer: A
- 16) $-9 \underline{\quad} \{9, 11, 13, 15\}$
 A) \in B) \notin
 Answer: B
- 17) $0 \underline{\quad} \{7, 9, 0, 11, 10\}$
 A) \notin B) \in
 Answer: B
- 18) $0 \underline{\quad} \{4, 5, 6, 7, 8, 9\}$
 A) \notin B) \in
 Answer: A
- 19) $\{9\} \underline{\quad} \{9, 10, 11, 12, 13, 14\}$
 A) \in B) \notin
 Answer: B
- 20) $\{10\} \underline{\quad} \{8, 10, 12, 14\}$
 A) \in B) \notin
 Answer: B
- 21) $\{0\} \underline{\quad} \{0, 4, 5, 6, 7\}$
 A) \in B) \notin
 Answer: B

22) $4 \underline{\quad} \emptyset$
A) \in B) \notin
Answer: B

23) $\emptyset \underline{\quad} \emptyset$
A) \notin B) \in
Answer: A

Tell whether the statement is true or false.

24) $6 \in \{4, 54, 6, 7\}$
A) True B) False
Answer: A

25) $7 \in \{-3, 8, 9, 12\}$
A) True B) False
Answer: B

26) $11 \notin \{0, 9, 10, 12, 14\}$
A) True B) False
Answer: A

27) $\{0, 8, 11, 16\} = \{11, 8, 16, 0\}$
A) True B) False
Answer: A

28) $\{1, 6, 4, 7\} = \{4, 1, 6\}$
A) True B) False
Answer: B

29) $\{x \mid x \text{ is a natural number greater than } 1\} = \{1, 2, 3, \dots\}$
A) True B) False
Answer: B

30) Let $A = \{9, 10, 11, 12, 13, 14\}$, $B = \{11, 13, 15\}$, $C = \{9, 10, 12, 14\}$, $D = \{9, 14\}$, and $U = \{9, 10, 11, 12, 13, 14, 15\}$.

$A \subseteq U$
A) True B) False
Answer: A

31) Let $A = \{8, 9, 10, 11, 12, 13\}$, $B = \{10, 12, 14\}$, $C = \{8, 9, 11, 13\}$, $D = \{8, 13\}$, and $U = \{8, 9, 10, 11, 12, 13, 14\}$.

$A \subseteq B$
A) True B) False
Answer: B

32) Let $A = \{2, 3, 4, 5, 6, 7\}$, $B = \{4, 6, 8\}$, $C = \{2, 3, 5, 7\}$, $D = \{2, 7\}$, and $U = \{2, 3, 4, 5, 6, 7, 8\}$.

$C \subseteq A$
A) True B) False
Answer: A