QUIZ 8

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QUIZ 8

Consider the following sets:

(i) {0,1}
(ii) {0,1,2,3,…,99}
(iii) {1,1/2,1/3,1/4,…}
(iv) {0,{1,1/2,1/3,1/4,…}}

How many of these sets are finite sets?

A. 0
B. 1
C. 2
D. 3
E. 4

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Consider the following statements:

(i) $|\{\}|=0$
(ii) $|\{\{\}\}|=1$
(iii) $|\{\{\{\}\}\}|=1$
(iv) $|\{\{\},\{\}\}|=2$

How many of these statements are correct?

A. 0
B. 1
C. 2
D. 3
E. 4

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Let S be a set. Consider the following statements:

(i) $\{\} \in 2^S$
(ii) $S \in 2^S$
(iii) $\{\} \subseteq 2^S$
(iv) $S \subseteq 2^S$

How many of these statements are correct?

A. 0
B. 1
C. 2
D. 3
E. 4

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QUIZ 8

Let S be a set. Consider the following statements:

(i) $2^{\{\}} = \{\}$
(ii) $2^{\{\{\}\}} = \{\{\}\}$
(iii) $|2^S| = 2{,}428{,}602$
(iv) $|2^S| = 9{,}576{,}931$

How many of these statements are correct or may be correct?

A. 0
B. 1
C. 2
D. 3
E. 4

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Consider the following statements:

(i) $|\{(m,n)\in\mathbb{Z}^2 \mid mn=0\}| = 1$
(ii) $|\{(m,n)\in\mathbb{Z}^2 \mid mn=1\}| = 1$
(iii) $|\{(x,y)\in\mathbb{R}^2 \mid |x|+|y|=0\}| = 1$
(iv) $|\{(x,y)\in\mathbb{R}^2 \mid x^2+y^2=0\}| = 1$

How many of these statements are correct?

A. 0
B. 1
C. 2
D. 3
E. 4

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QUIZ 8

Consider the following statements:

(i) 0..100 is bounded
(ii) $-\infty\ldots 0$ is bounded
(iii) $0..+\infty$ is bounded
(iv) $-\infty\ldots+\infty$ is bounded

How many of these statements are correct?

A. 0
B. 1
C. 2
D. 3
E. 4

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Consider the following statements:

(i) $[0,100]$ is bounded
(ii) $]-\infty,0]$ is bounded
(iii) $]0,+\infty[$ is bounded
(iv) $]-\infty,+\infty[$ is bounded

How many of these statements are correct?

A. 0
B. 1
C. 2
D. 3
E. 4

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Consider the following statements:

(i) [0,100] is closed
(ii) $]-\infty,0]$ is closed
(iii) $]0,+\infty[$ is closed
(iv) $]-\infty,+\infty[$ is closed

How many of these statements are correct?

A. 0
B. 1
C. 2
D. 3
E. 4

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Consider the following statements:

(i) [0,100] is open
(ii) $]-\infty,0]$ is open
(iii) $]0,+\infty[$ is open
(iv) $]-\infty,+\infty[$ is open

How many of these statements are correct?

A. 0
B. 1
C. 2
D. 3
E. 4

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Let S be a nonempty set, and let A, B and C be three subsets of S. Consider the following statements:

(i) $(2^S, \cup, \cap, ^-)$ is a Boolean algebra
(ii) $(2^S, \cap, \cup, ^-)$ is a Boolean algebra
(iii) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
(iv) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

How many of these statements are correct?

A. 0
B. 1
C. 2
D. 3
E. 4

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Consider the following membership tables.

A	B	A∪B
0	0	0
0	1	0
1	0	0
1	1	1

A	B	**A−B**
0	0	0
0	1	0
1	0	1
1	1	0

A	B	A+B
0	0	0
0	1	1
1	0	1
1	1	2

A	B	B−A
0	0	0
0	1	1
1	0	1
1	1	0

How many of them are correct?

A. 0 **B.** 1 **C.** 2 **D.** 3

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Consider two sets U and V with |U|=3 and |V|=4.
Consider the four binary relations over U and V represented as follows:

$$\begin{pmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{pmatrix}$$ **(i)**

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix}$$ **(ii)**

$$\begin{pmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 \end{pmatrix}$$ **(iii)**

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix}$$ **(iv)**

How many of these binary relations are functions?

A. 0
B. 1
C. 2
D. 3
E. 4