Name: Richard

QUIZ 1 ♠

MATH 211
January 19, 2023

1. Write this set by listing its elements between braces: $\{x^2+1 : x \in \mathbb{Z},\ -1 \le x \le 2\}$

$\{2, 1, 5\}$

$x=-1$
$x=0$
$x=1$
$x=2$

2. Express the set $X = \{\ldots, -10, -5, 0, 5, 10, 15, 20, \ldots\}$ in set-builder notation.

$\{5x : x \in \mathbb{Z}\}$

3. If $A = \{x \in \mathbb{Z} : x^2 < 10\}$, then $|A| =$

$A = \{-3, -2, -1, 0, 1, 2, 3\}$, so $|A| = 7$

4. Find the cardinality of the set $B = \{\{1,3\}, \{\{3,5,7\},\{6\}\}, \emptyset, 8, \{8\}\}$.

$|B| = 5$

Name:

QUIZ 1 ♢

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January 19, 2023

1. Write this set by listing its elements between braces: $\{x \in \mathbb{Z} : |2x| < 5\}$

$\{-2, -1, 0, 1, 2\}$

2. Express the set $X = \{\ldots, \frac{1}{8}, \frac{1}{4}, \frac{1}{2}, 1, 2, 4, 8, \ldots\}$ in set-builder notation.

$\{2^x : x \in \mathbb{Z}\}$

3. If $A = \{x \in \mathbb{Z} : 1 \le x^2 \le 4\}$, then $|A| =$

$A = \{-2, -1, 1, 2\}$ so $|A| = 4$

4. Find the cardinality of the set $B = \{\{\{1,4\}, a, b, \{3,4\}, \{\emptyset\}\}\}$.

$|B| = 1$

Name: _____

Quiz 1 ♣

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1. Write this set by listing its elements between braces: $\{1+5x \ : \ x \in \mathbb{Z}, -1 \leq x \leq 2\}$

$\{-4, 1, 6, 11\}$

$1+5\cdot(-1) = -4$
$1+5\cdot(0) = 1$
$1+5(1) = 6$
$1+5(2) = 11$

2. Express the set $X = \{\ldots, -9, -4, 1, 6, 11, 16, 21 \ldots\}$ in set-builder notation.

$X = \{1+5x \ : \ x \in \mathbb{Z}\}$

3. If $A = \{x \in \mathbb{Z} : |x| \leq 4\}$, then $|A| =$ 9

$A = \{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$

$|A| = 9$

4. Find the cardinality of the set $B = \{\{1\}, \{2, \{3, 4\}\}, \emptyset\}$.

$|B| = 3$

Name: _____

Quiz 1 ♡

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1. Write this set by listing its elements between braces: $\{x \in \mathbb{R} : x^2 - 2x = 8\}$

$\{-2, 4\}$

$x^2 - 2x = 8$
$x^2 - 2x - 8 = 0$
$(x+2)(x-4) = 0$
$x = -2$, $x = 4$

2. Express the set $X = \left\{\ldots, -\frac{\pi}{2}, 0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}, 2\pi, \frac{5\pi}{2}, \ldots\right\}$ in set-builder notation.

$\left\{\frac{k\pi}{2} \ : \ k \in \mathbb{Z}\right\}$

3. If $A = \{x \in \mathbb{Z} : x^2 < 1\}$, then $|A| =$ 1

$A = \{0\}$, so $|A| = 1$

4. Find the cardinality of the set $B = \{\{\{1\}, \{2, \{3, 4\}\}\}, \emptyset\}$.

$|B| = 2$