

Sets Overview & Operations



Problems: Conversion Between Set-Builder and Roster Form

Convert the following sets from Set-Builder Form to Roster Form

1. $A = \{x \mid x \in \mathbb{N}, x < 6\}$
2. $B = \{x \mid x \text{ is an even number}, 2 \leq x \leq 10\}$
3. $C = \{x \mid x \in \{1, 2, 3, 4, 5\}, x \text{ is odd}\}$
4. $D = \{x \mid x \text{ is a letter in the word 'APPLE'}\}$
5. $E = \{x \mid x \in \mathbb{N}, 1 \leq x \leq 5 \text{ and } x \text{ is a prime number}\}$
6. $F = \{x \mid x \in \{1, 4, 9, 16, 25\}\}$

Convert the following sets from Roster Form to Set-Builder Form

7. $G = \{2, 4, 6, 8, 10\}$
8. $H = \{1, 8, 27, 64, 125\}$
9. $I = \{-2, -1, 0, 1, 2\}$
10. $J = \{a, e, i, o, u\}$
11. $K = \{3, 6, 9, 12\}$
12. $L = \{m, t, w, f, s\}$

Key

Solutions for Converting from Set-Builder Form to Roster Form

1. $A = \{1, 2, 3, 4, 5\}$
2. $B = \{2, 4, 6, 8, 10\}$
3. $C = \{1, 3, 5\}$
4. $D = \{A, P, L, E\}$
5. $E = \{2, 3, 5\}$
6. $F = \{1, 4, 9, 16, 25\}$

Solutions for Converting from Roster Form to Set-Builder Form

7. $G = \{x \mid x \text{ is an even number}, 2 \leq x \leq 10\}$
8. $H = \{x \mid x = n^3, n \in \mathbb{N}, 1 \leq n \leq 5\}$
9. $I = \{x \mid -2 \leq x \leq 2\}$
10. $J = \{x \mid x \text{ is a vowel in the English alphabet}\}$
11. $K = \{x \mid x = 3n, n \in \mathbb{N}, 1 \leq n \leq 4\}$
12. $L = \{x \mid x \text{ is the first letter of a day of the week}\}$

These problems will help in understanding the conversion between set-builder and roster forms, reinforcing the concepts of set notation and representation.