

2.3: Set Builder Notation

Definition: Set Builder Notation

There is another way we can write interval notation. It is called set-builder notation. Set builder notation is the descriptive definition of the set.

- $x < 4$ Interval Notation: $(-\infty, 4)$ Set Builder Notation: $\{x \mid x \text{ is a real number less than } 4\}$
- $3 < x \leq 8$ Interval Notation: $(3, 8]$ Set Builder Notation: $\{x \mid x \text{ is a real number greater than } 3 \text{ and less than or equal to } 8\}$
- $x \geq 100$ Interval Notation: $[100, \infty)$ Set Builder Notation: $\{x \mid x \text{ is a real number greater than or equal to } 100\}$

? Exercise 2.3.1

Write the following in Set Builder Notation.

1. $x > 6$ Interval Notation: $(6, \infty)$

Answer

Set Builder Notation: $\{x \mid x \text{ is a real number greater than } 6\}$

? Exercise 2.3.2

Write the following in Set Builder Notation.

1. $-4 \leq x < 12$ Interval Notation: $[-4, 12)$

Answer

Set Builder Notation: $\{x \mid x \text{ is a real number greater than or equal to } -4 \text{ and less than } 12\}$

? Exercise 2.3.3

Write the following in Set Builder Notation.

1. $x \leq 30$ Interval Notation: $(-\infty, 30]$

Answer

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Set Builder Notation: $\{x \mid x \text{ is a real number less than or equal to } 30\}$