

Intervals

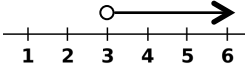
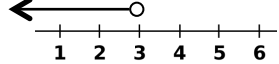
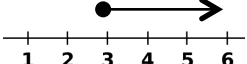
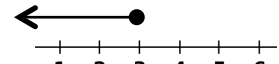
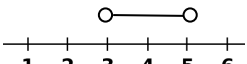
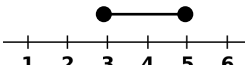
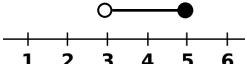
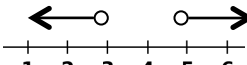
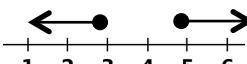
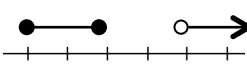
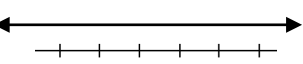
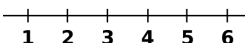
Secondary Math I Notes

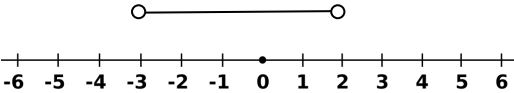
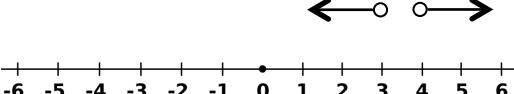
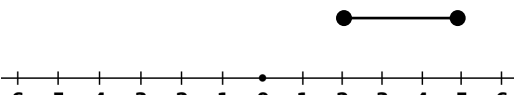

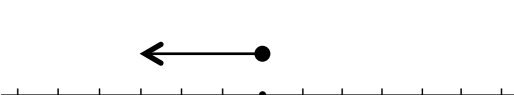
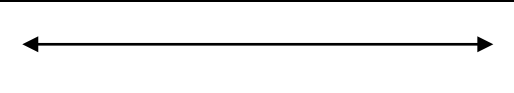
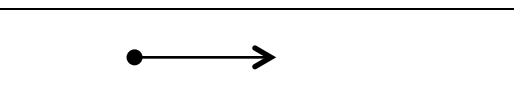
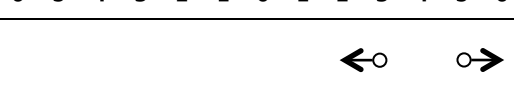
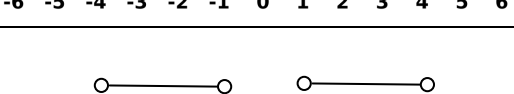
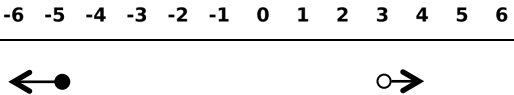
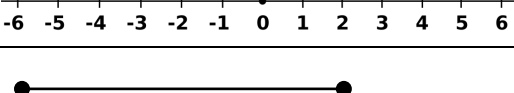
2.1

OBJECTIVE: Represent intervals using words, number line graphs, interval notation, and inequality symbols.

Interval:

Every value that is located on the number line between two specific endpoints. The endpoints may or may not be included. Sometimes one endpoint is included while the other is not.

Words	Line Graph	Interval Notation	Inequality Symbols
Greater than 3.		$(3, \infty)$	$\{x \mid 3 < x\}$
Less than 3.		$(-\infty, 3)$	$\{x \mid x < 3\}$
Greater than or equal to 3. No less than 3. At least 3.		$[3, \infty)$	$\{x \mid 3 \leq x\}$
Less than or equal to 3. No more than 3. At most 3.		$(-\infty, 3]$	$\{x \mid x \leq 3\}$
Greater than 3 but less than 5. In-between 3 and 5.		$(3, 5)$	$\{x \mid 3 < x < 5\}$
No less than 3 and no greater than 5. 3 and 5 and all numbers in-between. Greater than or equal to 3 and less than or equal to 5.		$[3, 5]$	$\{x \mid 3 \leq x \leq 5\}$
Greater than 3 and less than or equal to 5.		$(3, 5]$	$\{x \mid 3 < x \leq 5\}$
Less than 3 or greater than 5.		$(-\infty, 3) \cup (5, \infty)$	$\{x \mid x < 3 \text{ or } 5 < x\}$
Less than or equal to 3 and greater than or equal to 5.		$(-\infty, 3] \cup [5, \infty)$	$\{x \mid x \leq 3 \text{ or } 5 \leq x\}$
1, 3, and in-between or greater than 5.		$[1, 3] \cup (5, \infty)$	$\{x \mid 1 \leq x \leq 3 \text{ or } 5 < x\}$
All real numbers.		$(-\infty, \infty)$	$\{x \mid x \in \mathbb{R}\}$
No solution.		$(,)$	\emptyset

Line Graph	Interval Notation	Inequality Symbols
	$(-3, 2)$	$\{x \mid -3 < x < 2\}$
	$(-\infty, 3) \cup (4, \infty)$	$\{x \mid x < 3 \text{ or } x > 4\}$
	$[2, 5]$	$\{x \mid 2 \leq x \leq 5\}$
	$(-5, -2) \cup (3, \infty)$	$\{x \mid -5 < x < -2 \text{ or } 3 < x\}$
	$(-\infty, 0]$	$\{x \mid x \leq 0\}$
	$(-\infty, \infty)$	$\{x \mid x \in \mathbb{R}\}$
	$[-3, \infty)$	$\{x \mid -3 \leq x\}$
	$(-\infty, 3) \cup (5, \infty)$	$\{x \mid x < 3 \text{ or } x > 5\}$
	$(-4, -1) \cup (1, 4)$	$\{x \mid -4 < x < -1 \text{ or } 1 < x < 4\}$
	$(-\infty, -5] \cup (3, \infty)$	$\{x \mid x \leq -5 \text{ or } x > 3\}$
	$[-6, 2]$	$\{x \mid -6 \leq x \leq 2\}$