## Lesson 19: Queuing on the Number Line

* Let’s use number line to reason about inequalities.

### 19.1: Notice and Wonder: Shaded Number Line

What do you notice? What do you wonder?

$4>x$



### 19.2: Pick a Number

For each expression, pick a number you would like to evaluate, and tell whether it makes the inequality true. Be prepared to explain what made you choose your number.

1. $\frac{4}{3}y+10>19$
	1. Pick a number you would like to test in place of $y$: -1, 0, 1, 3, 4, or 5. Explain why you chose your number.
	2. Does your number make the inequality true?
	3. What is a different number that is definitely a solution? How do you know?
	4. What is a different number that is definitely not a solution? How do you know?
2. $2.954x−14.287<13.89$
	1. Pick a number you would like to test in place of $x$: -1, -0.5, 0, 0.5, 1, 3, 10, or 1,000. Explain why you chose your number.
	2. Does your number make the inequality true?
	3. What is a different number that is definitely a solution? How do you know?
	4. What is a different number that is definitely not a solution? How do you know?
3. $10−3y<5$
	1. Pick a number you would like to test in place of $y$: -100, -3, -1, 0,$\frac{1}{3}$, $\frac{5}{3}$, 33, or 100. Explain why you chose your number.
	2. Does your number make the inequality true?
	3. What is a different number that is definitely a solution? How do you know?
	4. What is a different number that is definitely not a solution? How do you know?
4. $\frac{10x}{4}>\frac{3x}{5}$
	1. Pick a number you would like to test in place of $x$: -10, -5, -4, 0, 4, 5, 10, or 20. Explain why you chose your number.
	2. Does your number make the inequality true?
	3. What is a different number that is definitely a solution? How do you know?
	4. What is a different number that is definitely not a solution? How do you know?

### 19.3: Matching Words and Symbols

For each inequality, write 3 values that make the inequality true, write 3 values that make it false, and choose a verbal description that matches the inequality.

1. $x>13.5$
	1. Three values that make it true:
	2. Three values that make it false:
	3. Which verbal description best matches the inequality?
		1. $x$ is less than 13.5
		2. $x$ is greater than 13.5
		3. 13.5 is greater than $x$
2. $-27<x$
	1. Three values that make it true:
	2. Three values that make it false:
	3. Which verbal description best matches the inequality?
		1. $x$ is less than -27
		2. $x$ is greater than -27
		3. -27 is greater than $x$
3. $x\geq \frac{1}{2}$ and $x\leq 2.75$
	1. Three values that make it true:
	2. Three values that make it false:
	3. Which verbal description best matches the inequality?
		1. $x$ is between $\frac{1}{2}$ and 2.75
		2. 2.75 is less than $x$ is less than $\frac{1}{2}$
		3. $x$ is greater than $\frac{1}{2}$
4. $x\geq -\frac{19}{4}$ and $x\leq \frac{1}{2}$
	1. Three values that make it true:
	2. Three values that make it false:
	3. Which verbal description best matches the inequality?
		1. $x$ is between $\frac{1}{2}$ and $-\frac{19}{4}$
		2. $x$ is less than $-\frac{19}{4}$
		3. $x$ is between $-\frac{19}{4}$ and $\frac{1}{2}$



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