

Lesson 9.1 Representing Inequalities

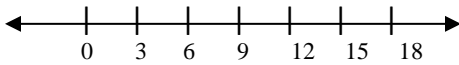
A _____ compares linear expressions that may not be equal.
 $x \geq -3$ means that x is greater than or equal to -3

Inequality can be expressed _____, _____, and algebraically.

Inequality	Meaning
$a > b$	a is greater than b
$a < b$	a is less than b
$a \geq b$	a is greater than or equal to b
$a \leq b$	a is less than or equal to b
$a \neq b$	a is not equal to b

Ex. 1 During the flu season of 2009, children over the age of 6 months are encouraged to receive their H1N1 vaccine.

Graphically:

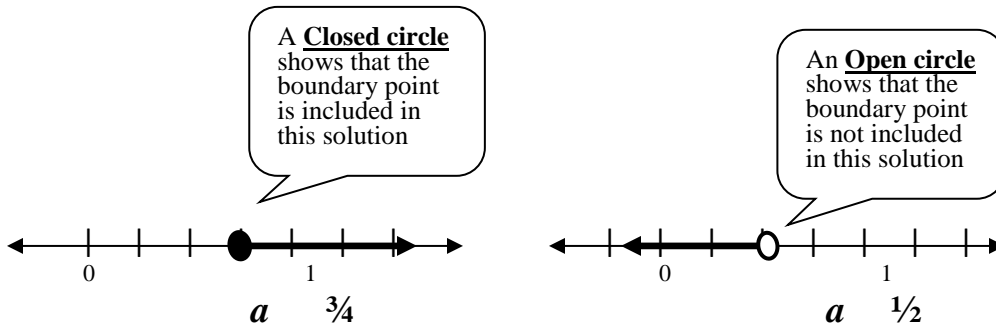


Algebraically: Let a = children's age

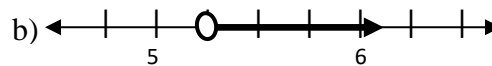
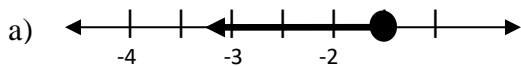
Verbally: Children _____ should get their H1N1 vaccine.

_____ separates the values less than from the values greater than a specified value. _____ may or may not be a possible value.

Ex. 2



Represent the following algebraically:



Algebraically: _____

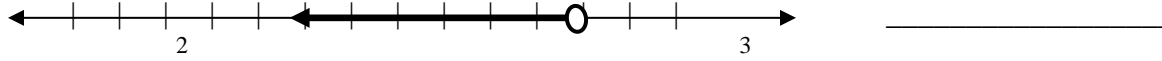
Ex. 3

a) Express the inequality shown on the number line verbally and algebraically.



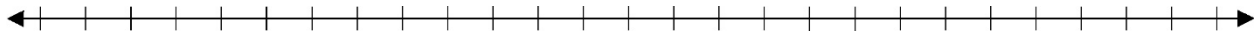
Verbally: _____

b) Express the inequality shown on the number line algebraically.



c) Express the inequality $x \geq -4/7$ verbally _____

d) Express the inequality $35 < n$ graphically



Ex. 4 Represent Double Inequalities

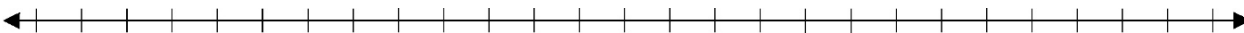
Represent the situation described in the newspaper headline with an inequality. Show it verbally, graphically, and algebraically.

**Average Daily Water Use
From 327L to 343L Per
Person**

Verbally: _____

Algebraically: _____

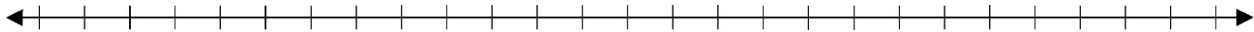
Graphically:



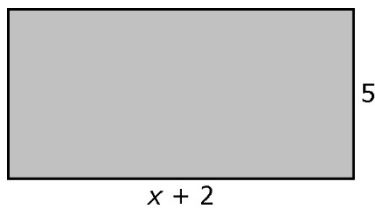
4. A balloon company guarantees that at least 18 of the balloons in each package are red. Fifteen percent of the balloons are red. What is the number of balloons in a package?
- a) Write an inequality to model the situation.

b) Solve and verify the inequality.

c) Represent your answer verbally and graphically.



5. a) Write and solve an equation to determine the values of x that give the rectangle shown an area of no more than 25 square units.



b) Are there values of x that would not be possible for the length of the rectangle? Explain.

Lesson 9.3 Solving Multi-Step Inequalities

There are two ways to solve an equation involving multiple steps.

Ex. Solve $-2(x+3) \leq 10x+18$, and verify the solution

Method 1

Use the _____ Property
 $-2(x+3) \leq 10x+18$

Method 2

_____ first
 $-2(x+3) \leq 10x+18$

Verify the solution:

Substitute the boundary point _____.

Substitute a value greater than _____,
such as 0.

Practice 1:

a) $\frac{3}{4}x+8 \leq \frac{1}{2}(3x-5)$

b) $6(5-x) \leq 7(x-5)$

c) $\frac{1}{2}(3x-4) \geq \frac{2}{3}(2x+3)$

Practice 2:

Your parents are celebrating their 25th wedding anniversary. They have compared the rates at two banquet halls. Fancy Feast charges \$200 for the hall plus \$30 per person. Beautiful Banquet charges \$400 for the hall plus \$20 per person.

a) Write an inequality to represent the number of people who could attend the celebration at Fancy Feast with a cost of no more than \$2000.

b) How many people need to attend to make Beautiful Banquet more cost efficient? Show your work.