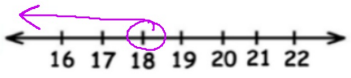
5.1.4: Compound Inequalities Name: _____

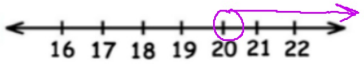
Compound Inequality Investigation

When fishing on Lake Mille Lacs, any walleye smaller than 18 inches must be released immediately.

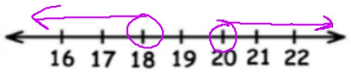
When fishing on Lake Mille Lacs, any walleye larger than 20 inches must be released immediately.

For each situation, create a graph to show the lengths of walleye that need to be released.





Create one graph that will show all fish that need to be released.



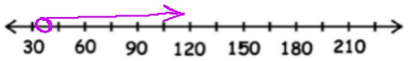
Write an inequality that represents the graph, and situation, above.

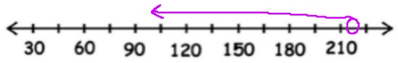
$x < 18$ or $x > 20$

Water is in a liquid state when the temperature is above 32°F.

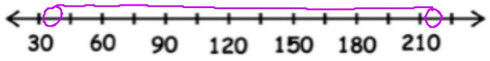
Water is in a liquid state when the temperature is below 212°F.

For each situation, create a graph to show the temperatures at which water is a liquid.





Create one graph that shows all temperatures at which water is in the liquid state.



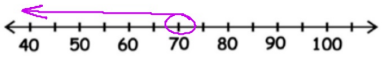
Write an inequality that represents the graph, and situation, above.

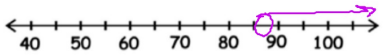
$x > 32$ AND $x < 212$; $32 < x < 212$

Tiger Sharks are not comfortable in water that is cooler than 70°F.

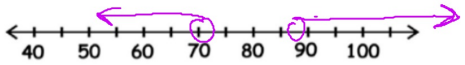
Tiger Sharks are not comfortable in water that is warmer than 86°F.

For each situation, create a graph to show the water temperatures that Tiger Sharks are not comfortable.





Create one graph to show all temperatures at which Tiger Sharks are not comfortable.



Write an inequality that represents the graph, and situation, above.

$x < 70$ OR $x > 86$

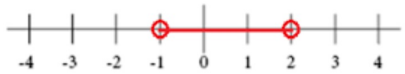
Compound inequalities

A compound inequality consists of two inequalities connected by and or or.

"And" compound inequality

$-1 < x < 2$

$x > -1$ AND $x < 2$

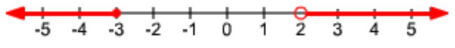


"And" compound inequalities can be written without the word "And"

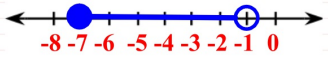
"Or" compound inequality

$x \leq -3$ or $x > 2$

$x \leq -3$ or $x > 2$



Write an inequality for the graph.



$x < 4$ OR $x \geq 9$

AND

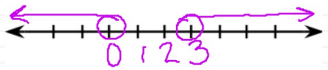
$-7 \leq x < -1$

Numbers less than 0 or greater than 3.

a) Pick two values that satisfy the statement above.

-1 ; 4

b) Graph the situation.



c) Write the inequality.

$x < 0$ OR $x > 3$

d) Pick two values that do not satisfy the statement above.

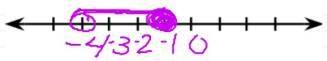
2 ; 1

Numbers greater than -4 and less than or equal to -1.

a) Pick two values that satisfy the statement above.

-2 ; -1

b) Graph the situation.



c) Write the inequality.

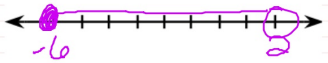
$-4 < x \leq -1$

d) Pick two values that do not satisfy the statement above.

-4 ; -5

Given: $-6 \leq g < 2$

a) Graph the situation.



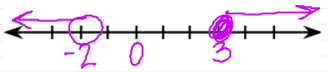
b) List one solution.

0

c) List one value that is not a solution.

-7

Given: $m < -2$ or $m \geq 3$



a) Graph the situation.

b) List one solution.

3

c) List one value that is not a solution.

0