COMPOUND INEQUALITIES

LEARNING GOAL

1. I can graphs solutions to simple compound inequalities.

A **compound eye** has more than one part.

A **compound inequality** has more than one part.

$$x > 2 \text{ and } x \leq 5$$

A compound inequality is an inequality formed by joining two inequalities with the word “and” or the word “or.”

“AND” Inequalities

$x > 2$ and $x \leq 5$	
$x > 2$	
$x \leq 5$	
$x > 2$ and $x \leq 5$	

“OR” Inequalities

$y \leq -2$ or $y > 1$	
$y \leq -2$	
$y > 1$	
$y \leq -2$ or $y > 1$	

Peppy
$x \geq 20$

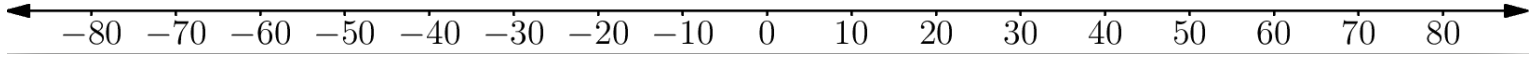
Kirby
$x < 70$

Lilly

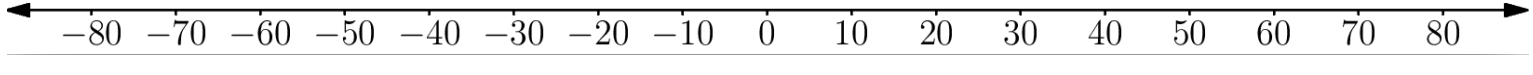
Frit
$x \leq -5$

1. The inequalities above show where Peppy, Kirby, and Frit can live. Draw the solution sets on the number lines:

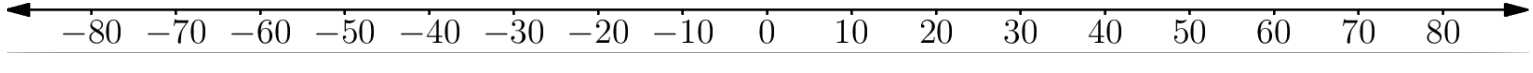
Peppy



Kirby

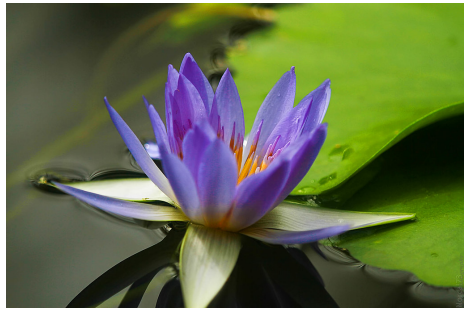


Frit



Peppy
$x \geq 20$

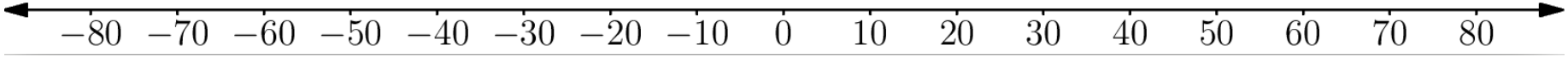
Kirby
$x < 70$



Lilly

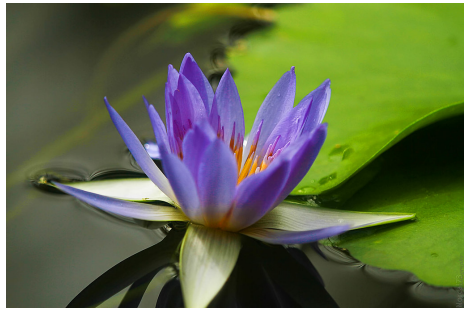
Frit
$x \leq -5$

1. If Peppy and Kirby must be together, where can Peppy and Kirby live?

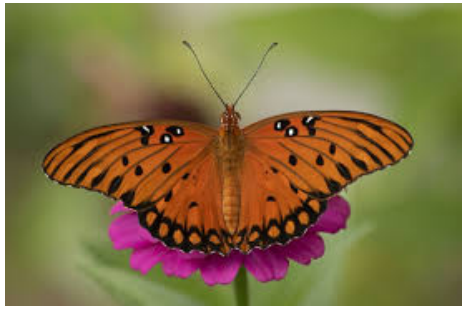


Peppy
$x \geq 20$

Kirby
$x < 70$

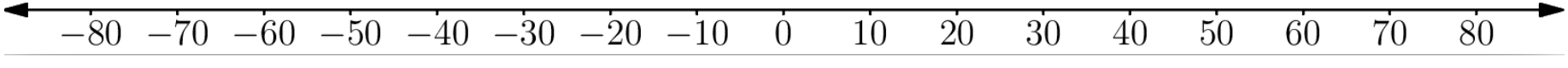


Lilly



Frit
$x \leq -5$

2. If Lilly must be with either Peppy**or** Fritillary, where can Lilly live?



Written Statement	AND or OR?	Graph of Inequality	Written Inequality
I am thinking of a number that is greater than -8 and less than or equal to 4.			
I am thinking of a number that is at most 0 or at least 2.			
I am thinking of a number that is more than 0 and less than 10.			
I am thinking of a number that is fewer than -6 or no less than -3.			
I am thinking of a number that is less than 6 and greater than 2.			
I am thinking of a number that is less than or equal to -7 or greater than 12.			

HEIGHT REQUIREMENTS

At Sea World San Diego, kids are only allowed into the Air Bounce if they are between 37 and 61 inches tall. They are only allowed on the Tide Pool Climb if they are 39 inches tall or under:

a. Represent the height requirements of each ride with inequalities.

Tide Pool Climb

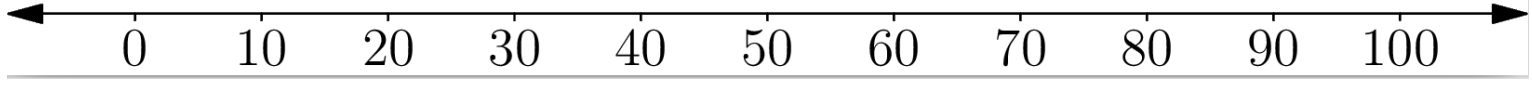
Air Bounce

HEIGHT REQUIREMENTS

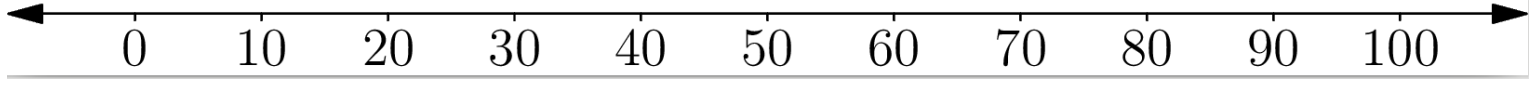
At Sea World San Diego, kids are only allowed into the Air Bounce if they are between 37 and 61 inches tall. They are only allowed on the Tide Pool Climb if they are 39 inches tall or under:

b. Show the allowable heights for the rides on separate number lines.

Tide Pool Climb



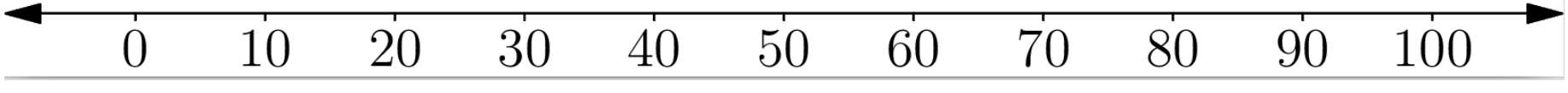
Air Bounce



HEIGHT REQUIREMENTS

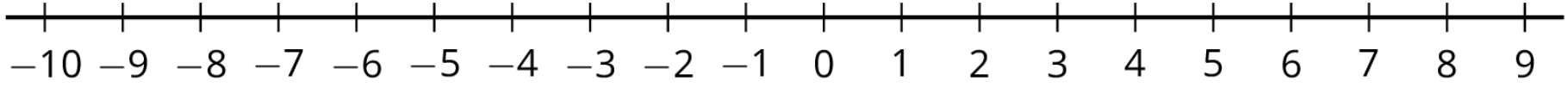
At Sea World San Diego, kids are only allowed into the Air Bounce if they are between 37 and 61 inches tall. They are only allowed on the Tide Pool Climb if they are 39 inches tall or under:

c. Using inequalities and a number line, describe the height of kids who can go on the both the Air Bounce and the Tide Pool Climb.



EXERCISE 1

Graph the compound inequality $2x - 3 \geq 4$ and $3x + 1 \geq 4$.



EXERCISE 2

Solve and graph the inequality $-10 < 2 + x < -1$.

I need help

EXERCISE 3

Graph the compound inequality $3 - 2x \leq -5$ or $3 - 2x \geq 5$.