Unit 4, Lesson 8

# Representing Systems of Inequalities

Let's find and represent solutions to situations involving inequalities.

## 8.1 Which Three Go Together: Splash Zone!



Which three go together? Why do they go together?

A

Clare's family wants to

- Spend at least 4 hours at the amusement park.
- Spend more time in the Splash Zone than riding rides.

B

Jada's family wants to

- Be at the amusement park from 4 p.m. to 8 p.m.
- Spend most of their time riding rides.

C

Priya's family wants to

- Spend 2 hours at Splash Zone.
- Spend 2 hours riding rides.

D

Diego's family wants to

- Spend no more than 6 hours at the amusement park.
- Spend at least twice as long riding rides as they spend at Splash Zone.


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# 8.2 Amusing Solutions

For each family, let $x$ be the amount of time, in hours, each family spends riding rides, and $y$ be the amount of time, in hours, each family spends at the Splash Zone.

List one or more ordered pairs $(x, y)$ that would fit the constraints. If you can list only one, explain why you can list only one.

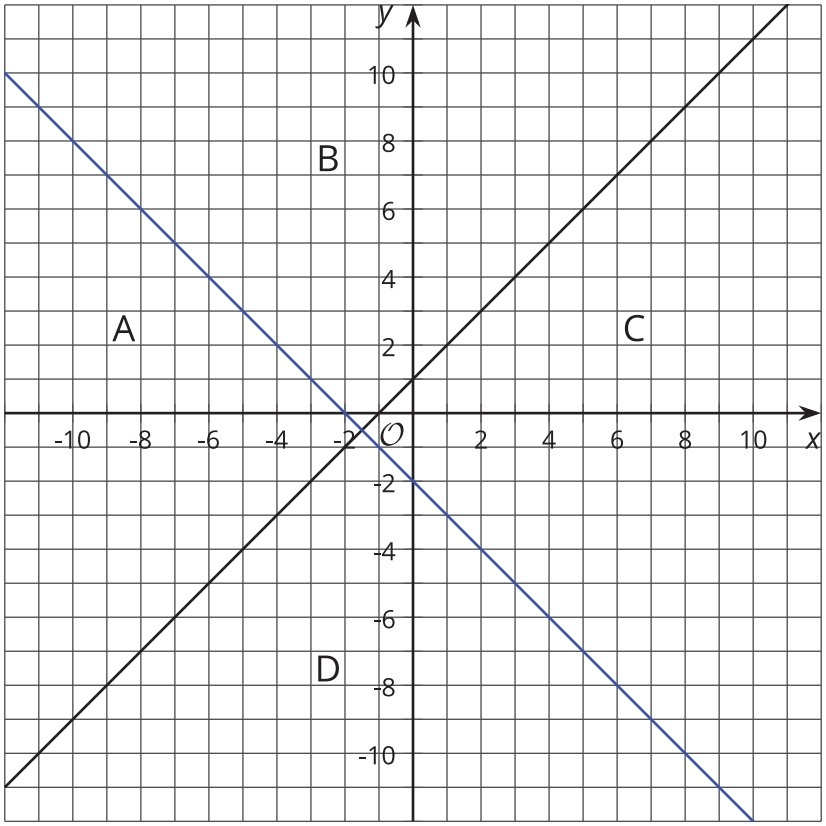
1. Clare's family wants to spend at least 4 hours at the amusement park, and they want to spend more time in the Splash Zone than riding rides.

2. Jada's family wants to be at the amusement park from 4 p.m. to 8 p.m., and they want to spend most of their time riding rides.

3. Priya's family wants to spend 2 hours at Splash Zone and 2 hours riding rides.

4. Diego's family wants to spend no more than 6 hours at the amusement park, and they want to spend at least twice as long riding rides as they spend at Splash Zone.

# 8.3 Which Section?




1. The graph shows the lines $y = x + 1$ and $y = -x - 2$. Which line represents $y = x + 1$?
2. For each of the 4 regions, write a coordinate pair for a point in that region.

3. Change the equations represented by the lines into inequalities so that the region labeled as A is shaded by both inequalities.
   a. $y$_____$x + 1$
   b. $y$_____$-x - 2$
4. Use the coordinate pair you chose for region A to check your inequalities.