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.

 CC BY NC 2024 Illustrative Mathematics®

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.

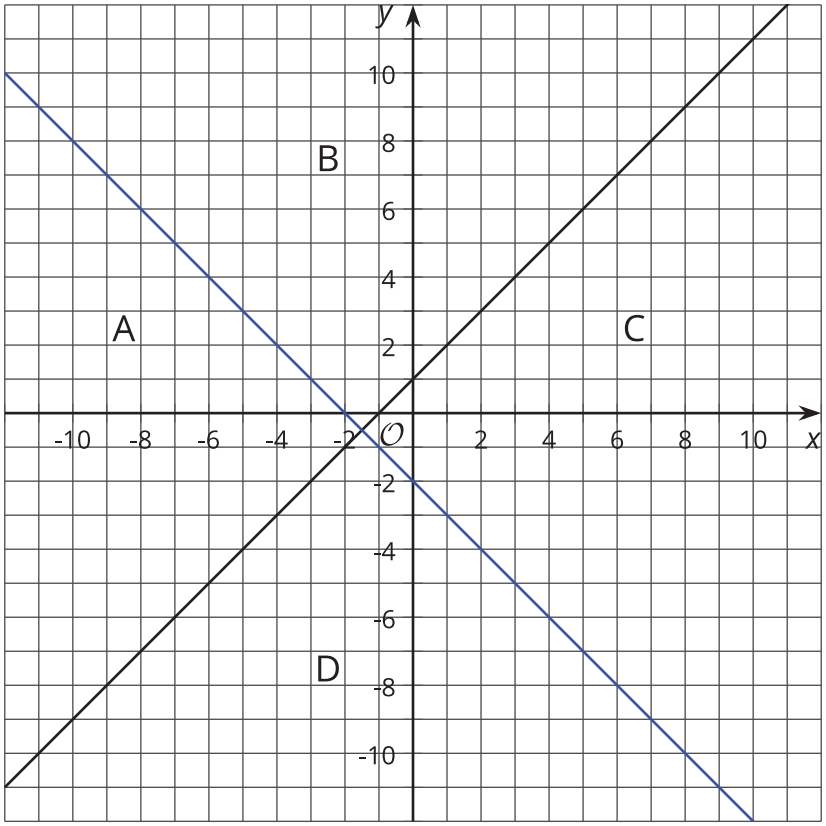
1. Clare's family wants to spend at least 4 hours at the amusement park, and they want to spend more time in the Splash Zone than riding rides.

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.