

# 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.

## 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.

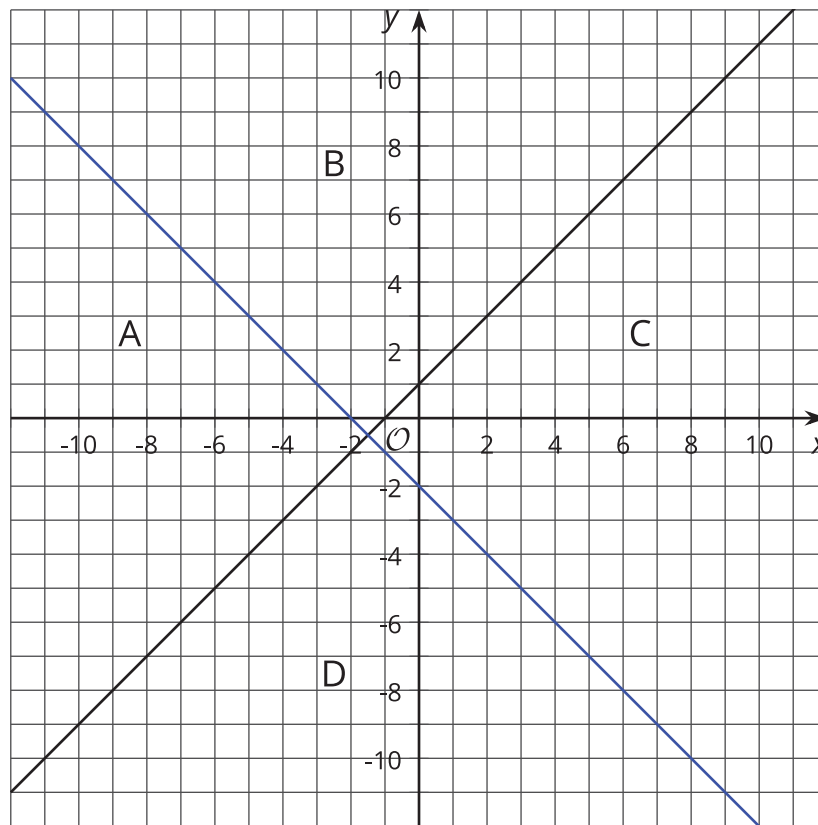
List one or more ordered pairs  $(x, y)$  that would fit the constraints. If you can list only one, explain why you can list only one.

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.