Mathtastic Amusement Park

Common Core Standard

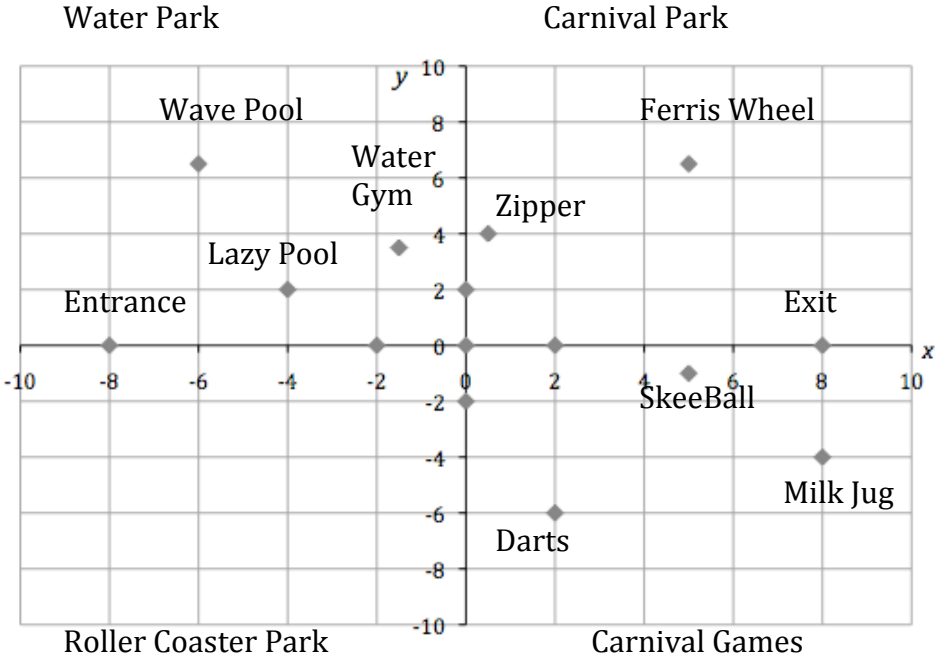
6. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. Note: Include integers and decimals.

b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

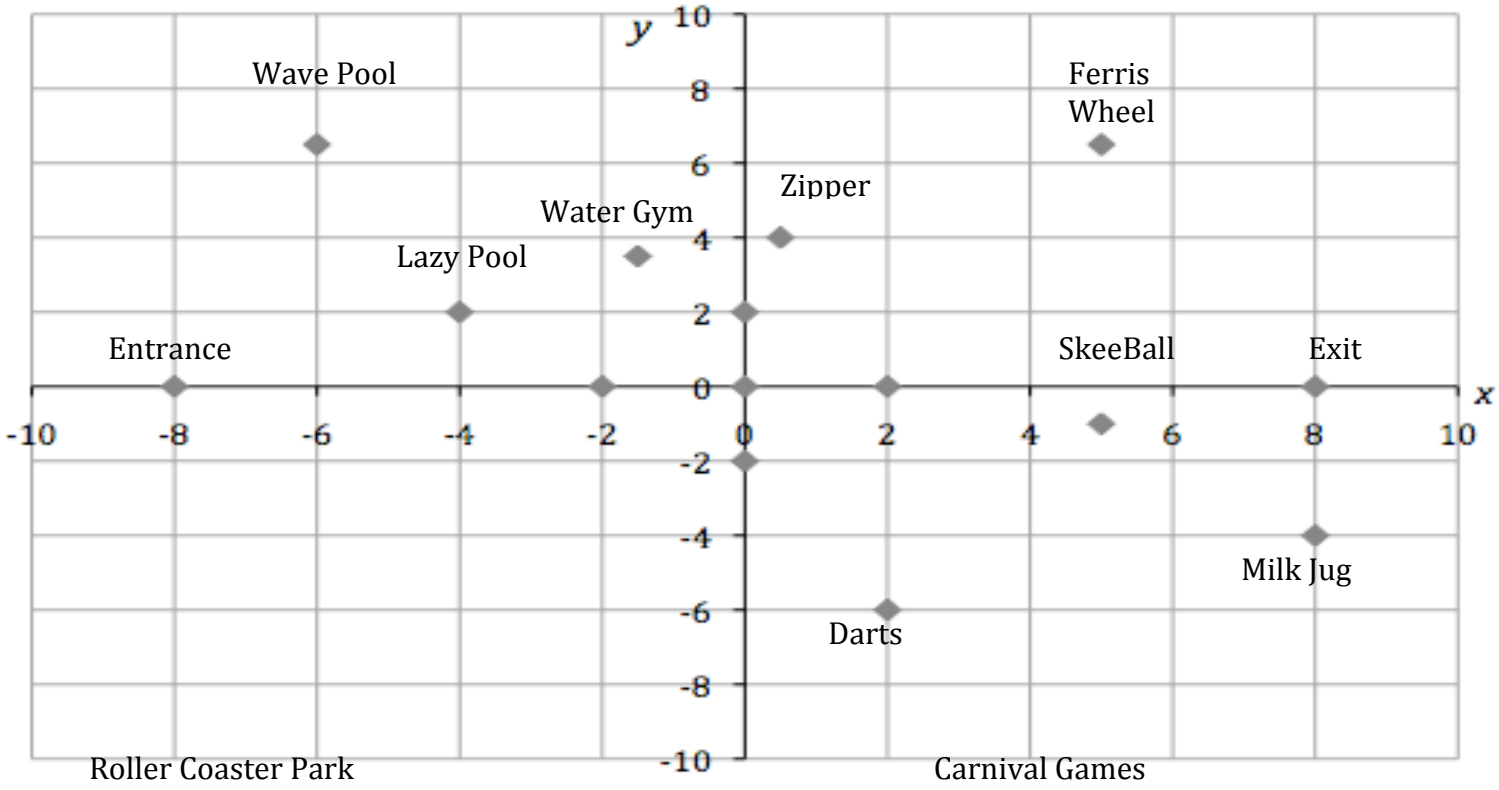
c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational number on a coordinate plane.

The Task

The Mathtastic Amusement Park needs help finding the different attractions around the park. The amusement park has been split up into four differently themed areas. The first theme is carnival rides, the second theme is the water park, the third theme is roller coasters, and the fourth theme is games.



Map of Mathtastic Amusement Park



On the map, all food is located at (0, 0), and the bathrooms for the park are located at (-2, 0), (2, 0), (0, -2) and (0, 2).

- How do the positions of the bathrooms relate to each other?
- What about the entrance and exit?
- Describe the relationship between the wave pool and the Ferris wheel?
- Dr. Algebra was looking for the "Milk Jug" game on the map. Where would you direct him to look?

Extension:
The Mathtastic team needs help finishing the map for guests to use in the park. The team has five roller coasters that need to be placed on the map:

- Intimidator (-3, -1)
- Big Bear (-7, -5)
- Comet (-2, -4)
- Wild Mouse (-1, -6)
- Skyrush (-5, -2)

Facilitator Notes

1. Introduce the task to the students. Allow students a few minutes to read the task.
2. Consider having pictures of amusement parks up around the room and showing a quick clip of a ride.
3. Review how to plot points and the quadrants of the graph, if needed.
4. Have students work in pairs to find the locations of the different attractions to the amusement park.
5. Circulate to monitor students' work. Ask students how they are deciding to find the location of each place in the park, etc.
6. For Extension activities, group students at stations and have them rotate around the room.

Follow-Up Questions

- How do the positions of the bathrooms relate to each other?
- What about the entrance and exit?
- Describe the relationship between the wave pool and Ferris wheel?
- Dr. Algebra was looking for the "Milk Jug" game on the map. Where would you direct him to look?
- Extension: The Mathtastic team needs help finishing the map for guests to use in the park. The team has five roller coasters that need to be placed on the map.

Solutions

Entrance: (-8, 0), Exit (8, 0)
Water Park: Wave Pool (-6, 6.5), Lazy Pool (-4, 2), Water Gym (-1.5, 3.5)
Carnival Park: Zipper (0.5, 4), Ferris Wheel (5, 6.5)
Carnival Games: Darts (2, -6), SkeeBall (5, -1), Milk Jug (8, -4)