

Amaaazing Amusement Park

Common Core Standard

8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

MP1: Make sense of problems and persevere in solving them.

MP2: Reason abstractly and quantitatively.

MP3: Construct viable arguments and critique the reasoning of others.

MP6: Attend to precision.

The Task

You and your family went to the *Amaaazing Amusement Park* last week. Once you arrived at the park, you decided to go to the food court, located at point A, to have lunch. After lunch, you convince your parents to allow you and your sister to explore the park without them.

You and your sister would like to visit 7 places before meeting for dinner at 5 pm. If you both want to visit the Gift Shop, Boat Ride, Fun Slide, Arcade, Go Cart, Haunted House, and the Helicopter Ride, what is the least amount of distance that you need to travel and meet your parents back at the food court if each unit on the grid is equivalent to 10 yards?

Facilitator Notes

1. Pass out a copy of the Amusement Park Map to each student.
2. This task is designed for groups of 2 to 3 to encourage discourse and collaboration. (Look for evidence of MP1 and MP2.)
3. Have each group share answers to compare solutions. Have groups check each other's answers to see that the calculations were accurate. Make sure to have students discuss strategies used to determine solutions. (Look for evidence of MP3.) Did groups use similar strategies to determine the shortest distance to travel?

Follow-Up Questions

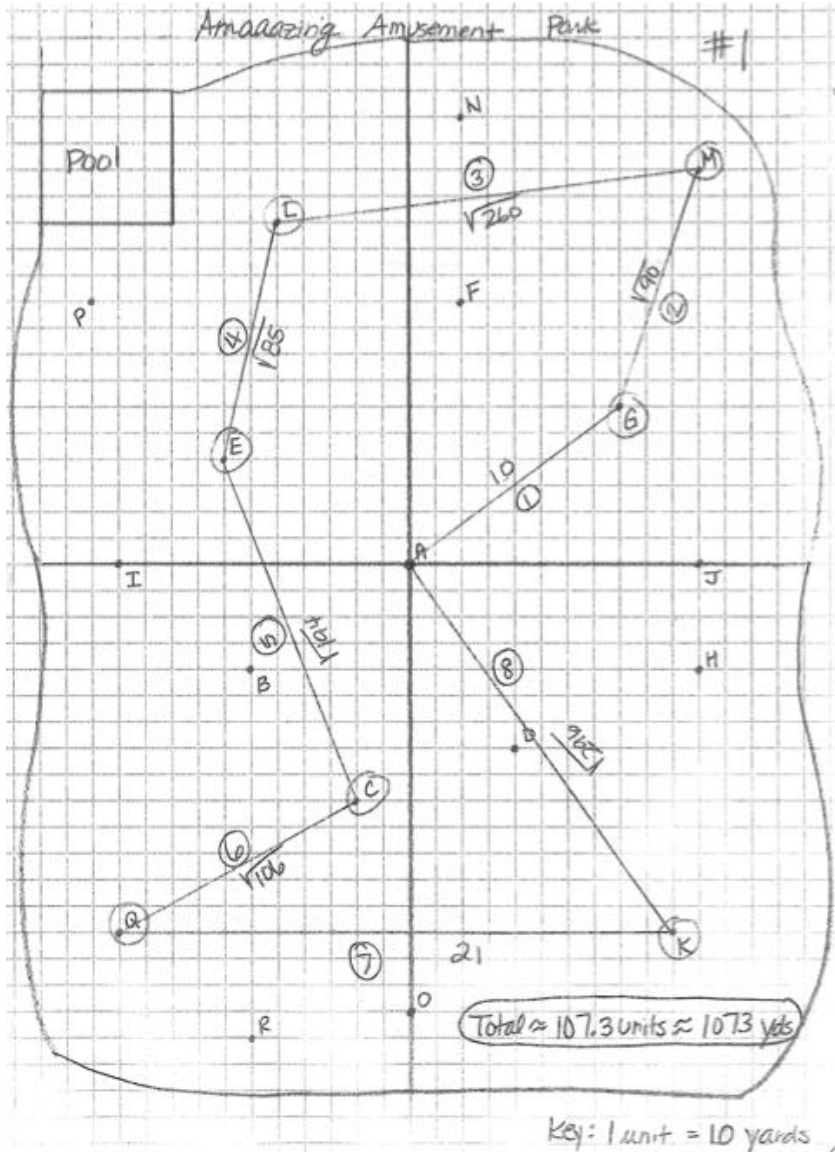
1. Explain your reasoning for the route that you chose. (Look for evidence of MP3.)
2. What is the maximum number of places you can visit by walking less than 1,500 yards? (Look for evidence of MP2 and MP6.)
3. What was your method for finding the actual distances between the attractions?
4. How did your group know that you had the shortest distance? (Look for evidence of MP3.)

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Solutions

Possible Solutions:

Solution #1:



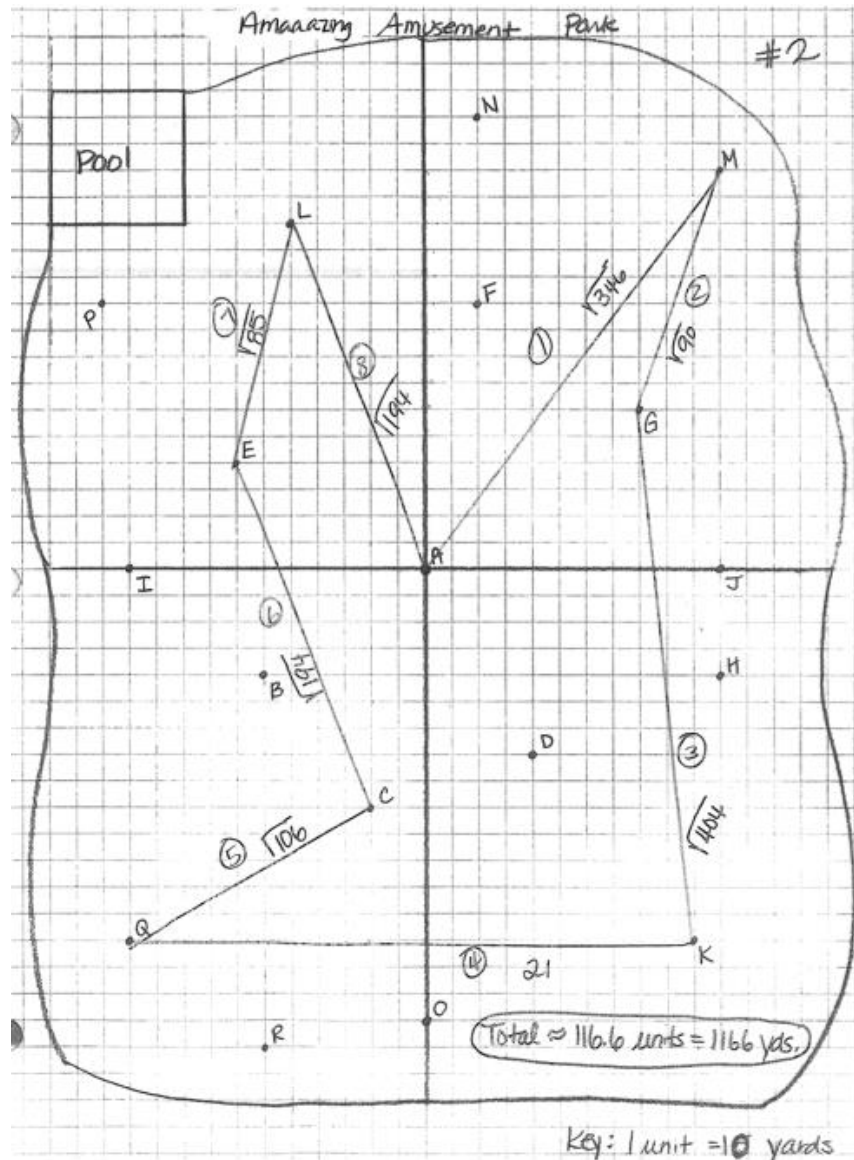
- Start from Food Court to Go Cart = 10 units
- Go Cart to Fun Slide = $\sqrt{90}$ units
- Fun Slide to Gift Shop = $\sqrt{260}$ units
- Gift Shop to Haunted House = $\sqrt{85}$ units
- Haunted House to Helicopter Ride = $\sqrt{194}$ units
- Helicopter Ride to Arcade = $\sqrt{106}$ units

Arcade to Boat Ride = 21 units

Boat Ride back to Food Court = $\sqrt{296}$ units

Total distance ≈ 107.3 units $\times 10 \approx 1073$ yards

Solution #2:



Start from Food Court to Fun Slide = $\sqrt{346}$ units

Fun Slide to Go Cart = $\sqrt{90}$ units

Go Cart to Boat Ride = $\sqrt{404}$ units

Boat Ride to Arcade = 21 units

Arcade to Helicopter Ride = $\sqrt{106}$ units

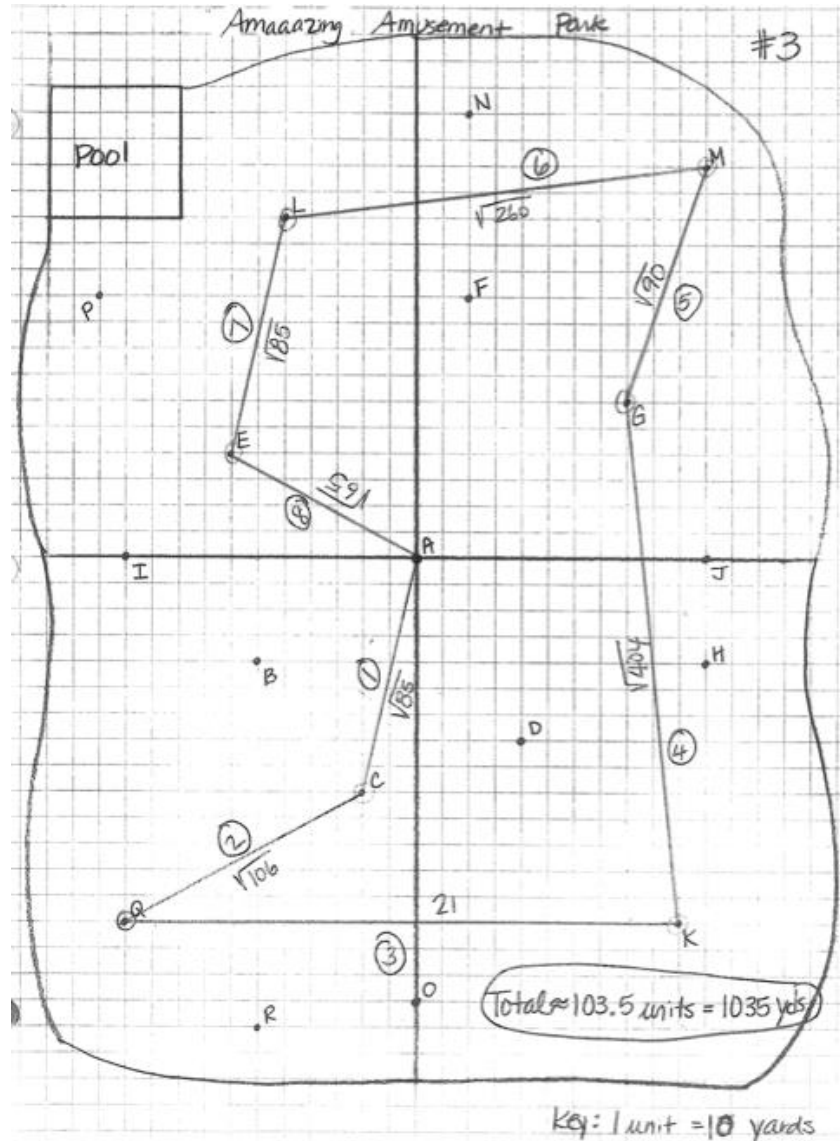
Helicopter Ride to Haunted House = $\sqrt{194}$ units

Haunted House to Gift Shop = $\sqrt{85}$ units

Gift Shop back to Food Court = $\sqrt{194}$ units

Total distance ≈ 116.6 units $\times 10 \approx 1166$ yards

Solution #3:



Start from Food Court to Helicopter Ride = $\sqrt{85}$ units

Helicopter Ride to Arcade = $\sqrt{106}$ units

Arcade to Boat Ride = 21 units

Boat Ride to Go Cart = $\sqrt{404}$ units

Go Cart to Fun Slide = $\sqrt{90}$ units

Fun Slide to Gift Shop = $\sqrt{260}$ units

Gift Shop to Haunted House = $\sqrt{85}$ units

Haunted House back to Food Court = $\sqrt{65}$ units

Total distance ≈ 116.6 units $\times 10 \approx 1166$ yards