Parallel and Perpendicular Lines

Rania and Portia have designed a set of racing slides for the east end of the new waterpark.

On these slides, guests can race each other by launching side-by-side from the top of the slides at the same time.

The winner is the person who splashes down first!

After reviewing Rania and Portia's design, the city council asks them to create a second set of racing slides for the west end of the park.

The slides that Rania and Portia design for the west side need to have the same steepness as their original design, but the slides must be shorter.

This graph shows a model of the proposed slides.

In this model, the horizontal axis represents the ground, and the vertical axis represents the tallest support beam of the slide.

On the graph, the blue line represents the slides that Rania and Portia designed for the east end of the park. The slope-intercept equation that represents this line is y equals negative four thirds x plus twenty.

The green line represents the design for the proposed slides at the west end of the park.

Both lines have the same steepness. Does it look like the lines will intersect?

No, these lines will not intersect. They are parallel lines.

Parallel lines extend forever in each direction, and they never touch or intersect each other.

Rania and Portia can use the characteristics of parallel lines and the equation that describes the slides on the east end of the park to write an equation to represent the slides for the west end of the water park.

In this lesson, you will learn how to use the characteristics of parallel lines to write the equations that represent those lines.

You will also learn about perpendicular lines. Like parallel lines, perpendicular lines have unique properties you can use to write their equations.