Designing a Waterpark Slide

Grab and Go

GED® Mathematics Reasoning

Properties of Right Triangles
Extension Activity: Slopes

Ronald Cruz

ipdae INSTITUTE FOR THE PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

Designing a Waterpark Slide

Lesson Activity

This Grab and Go Activity follows a real-world problem solving approach and is designed to be conducted with your students. You may use this activity as a review for small groups of students or use this activity as part of your lesson with your whole class. Preview the Grab and Go Activity in its entirety before showing it to your students so that you know when to pause the video and allow your students to work the problem.

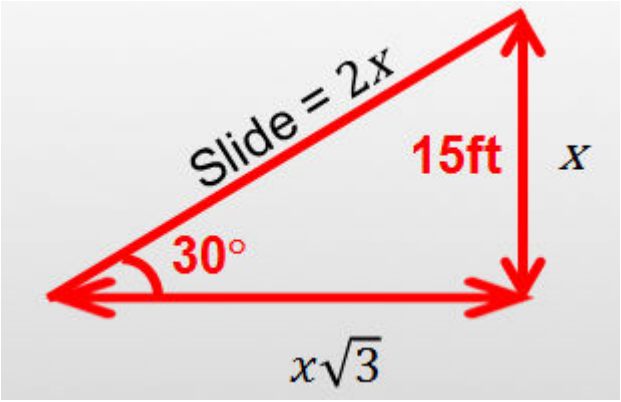
The first part of the video will introduce the real-world problem at hand as a class challenge. After that, students will be given time to set-up and solve their equation based on the information given in the problem. The last part of the video will show the step-by-step solution to real-world (challenge) problem.

Please note that there are multiple ways to solve a particular word problem. This grab and go will only show one method of solution. It is best practice for teachers to show alternative approaches or solutions to the problem presented in this Grab and Go Activity.

Real-World (Challenge) Problem:

Determine the length of a slide needed to construct a slide with a height of 15 feet landing somewhere in the middle of the pool at an angle of 30°.

Solution:



Length of slide= $2x$
= 2(15ft)
= 30ft

Enrichment:

To extend this activity, students may be asked to determine the slope of the slide using the base and the height of the triangle formed by the slide with the surface of the water.

Students may use the slope formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Additional Problems:

1. Find the height of a slide 30m long that makes an angle of $45°$with the surface of the water?
2. Determine the length of a slide needed to construct a water slide with a height of 10.75ft, landing 15ft from the base of the slide?
3. Determine the length of a slide needed to construct a water slide with a height of $20\frac{1}{2}$ ft landing somewhere in the middle of the pool at an angle of 45°.