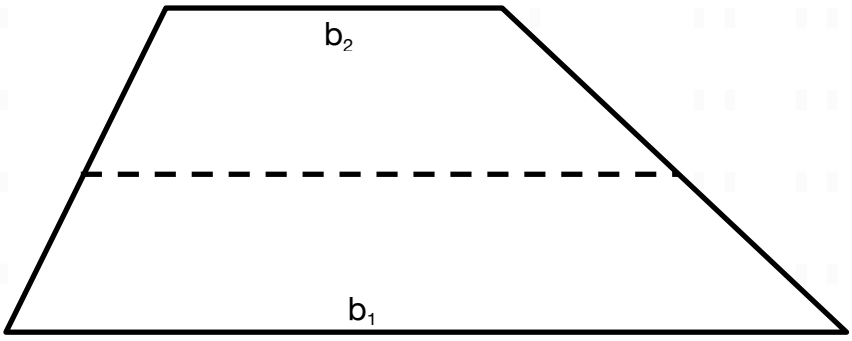
Area of a Trapezoid
Extend Your Learning

The video developed the formula for area of a trapezoid by forming a parallelogram with two congruent trapezoids. You will investigate two additional methods of developing the formula by completing the following problems.

Method 1: Cut out the trapezoid shown below. Cut along the dotted line and arrange the two pieces to form a parallelogram.



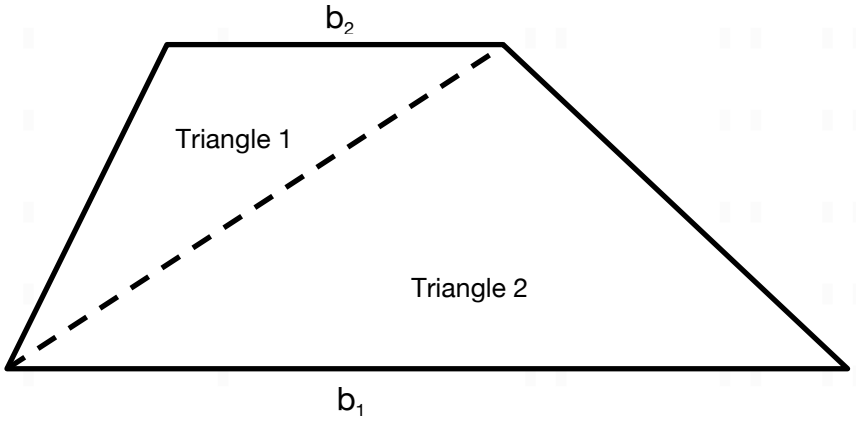
1. How does the area of the parallelogram compare to the area of the trapezoid?

2. How does the base of the parallelogram compare to the bases of the trapezoid?

3. How does the height of the parallelogram compare to the height of the trapezoid?

4. Use this representation to determine a formula for finding the area of any trapezoid. Explain your reasoning.

Method 2: The trapezoid is divided into two different triangles.



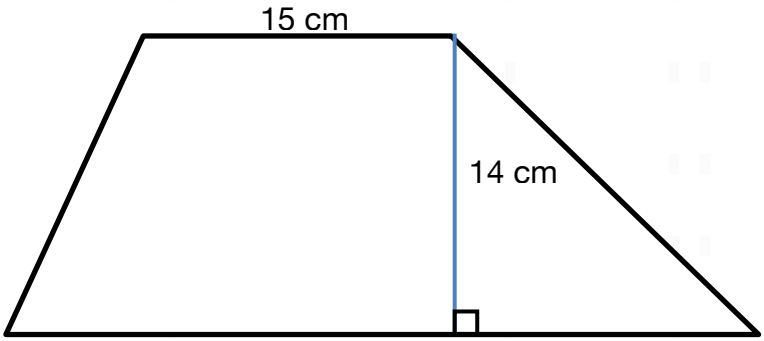
5. How does the area of the trapezoid compare to the area of the two triangles?

6. How does the height of the trapezoid compare to the height of each triangle?

7. How do you find the area of Triangle 1? How do you find the area of Triangle 2?

8. Use this representation to determine a formula for finding the area of any trapezoid. Explain your reasoning.

In order to show that the results are the same with both methods, use each method to determine the area of the following trapezoid.



9. Use the reasoning from Method 1 to compute the area of the trapezoid. (Method 1: Cut the trapezoid into two parts and rearrange the parts to form a parallelogram.)

10. Use the reasoning from Method 2 to compute the area of the trapezoid. (Method 2: Divide the trapezoid into two different triangles, find the sum of the areas of the triangles.)