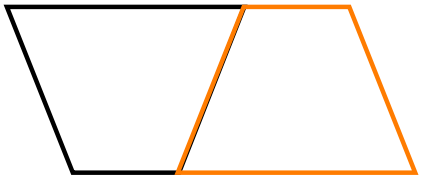
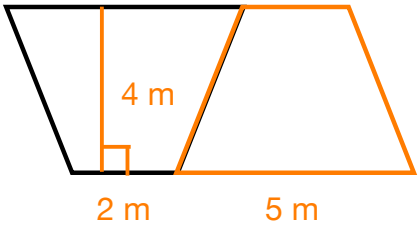
Area of a Trapezoid

Use What You've Learned
Answers and Explanations

1. Sketch a congruent trapezoid next to the following trapezoid so that the two trapezoids form a parallelogram.



2. The height of the trapezoid equals 4 m, b_1 (base one) equals 2 m, and b_2 (base two) equals 5 m. Label the dimensions of the parallelogram.



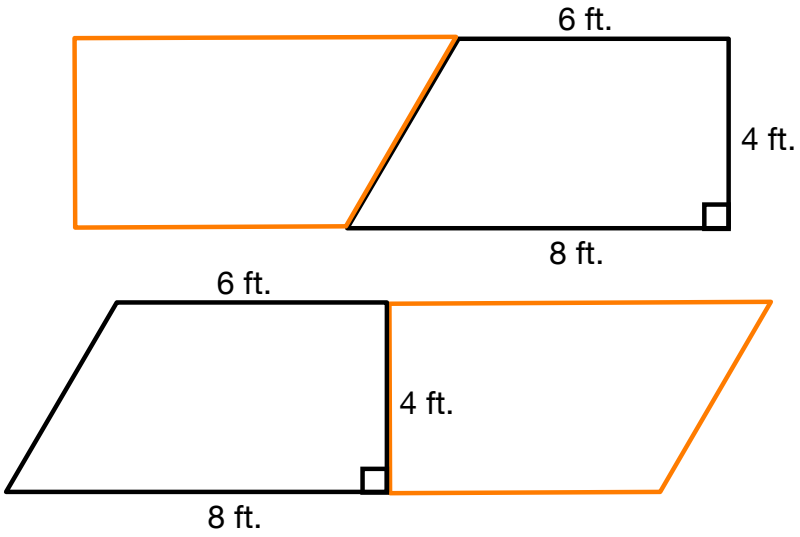
3. Determine the area of the parallelogram.

   The area of a parallelogram is equal to the base times the height. The base of this parallelogram is equal to 7 m (2 m + 5 m) and the height is equal to 4 m. The area is equal 7 times 4, or 28 sq. m.

4. Determine the area of one trapezoid.

   The area of one trapezoid is ½ the area of the parallelogram, or 14 sq. m.

5. Sketch a congruent trapezoid next to the following trapezoid so that the two trapezoids form a parallelogram.



The diagrams show two different ways to form a parallelogram. A rectangle is a special type of parallelogram. The two parallelograms have the same base, the same height, and the same area. The base of the parallelograms is equal to sum of bases of the trapezoid.

6. Determine the area of the parallelogram.

The area of a parallelogram is equal to the base times the height. The base of this parallelogram is equal to 14 m (6 m + 8 m) and the height is equal to 4 m. The area is equal 14 times 4, or 56 sq. m.

7. Determine the area of one trapezoid.

The area of one trapezoid is ½ the area of the parallelogram, or 28 sq. m.

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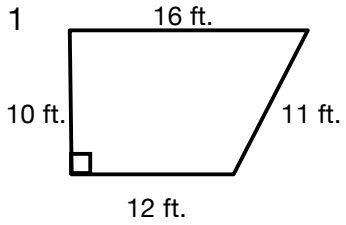
The front view of the house in the video has five sections of roof that are shaped like trapezoids. We determined the area of trapezoid 5 in the video.

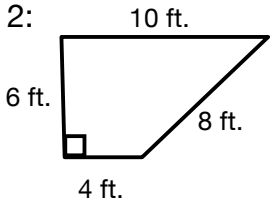
Find the area of the remaining four trapezoids.

Trapezoid 1



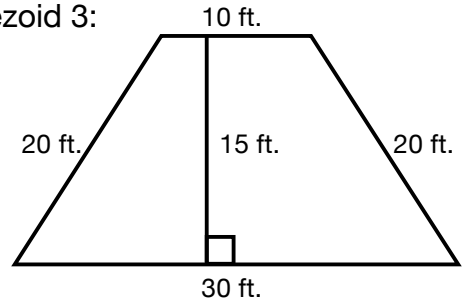
Trapezoid 1: $A = \frac{1}{2}(12+16)(10)$
$= 140$ sq. ft.

Trapezoid 2:



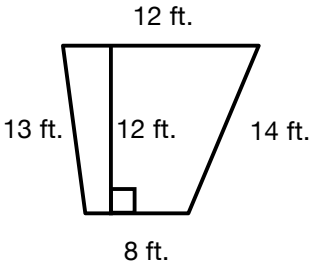
Trapezoid 2: $A = \frac{1}{2}(4+10)(6)$
$= 42$ sq. ft.

Trapezoid 3:



Trapezoid 3: $A = \frac{1}{2}(30+10)(15)$
$= 300$ sq. ft.

Trapezoid 4:



Trapezoid 4: $A = \frac{1}{2}(8+12)(12)$
$= 180$ sq. ft.