

Finding the Area of Flat Shapes

Grade 6 math · Lesson · Standards: 6.G.A.1

Quick answer: To find the area of a polygon, use $A = bh$ for a parallelogram, $A = \frac{1}{2}bh$ for a triangle and $A = \frac{1}{2}(b_1 + b_2)h$ for a trapezoid. For a composite polygon, split it into rectangles and triangles, find each area, then add. Always answer in square units.

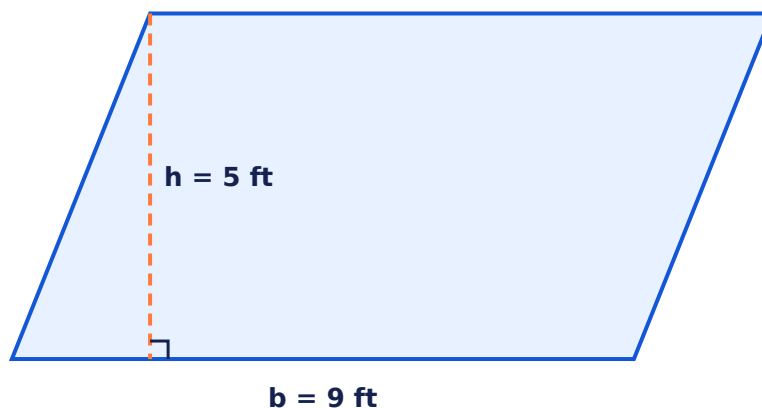
Standards: 6.G.A.1 · **Level:** Grade 6

How do you find the area of a triangle, parallelogram or trapezoid?

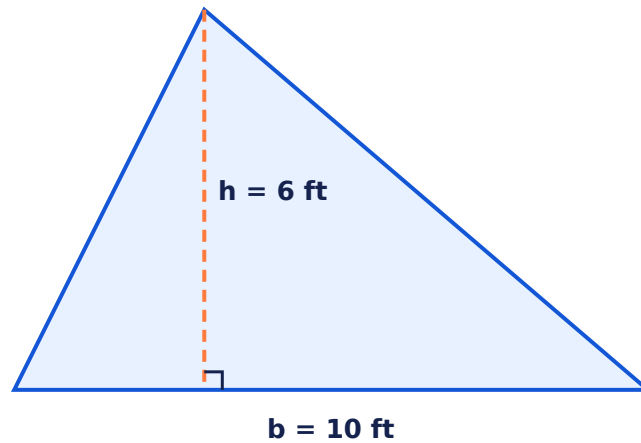
Area measures how many unit squares cover a flat shape. Each formula below comes from cutting a shape apart and rebuilding it as a rectangle. The **height** is always the perpendicular distance between the base and the opposite side or vertex, never a slanted side.

Area formulas

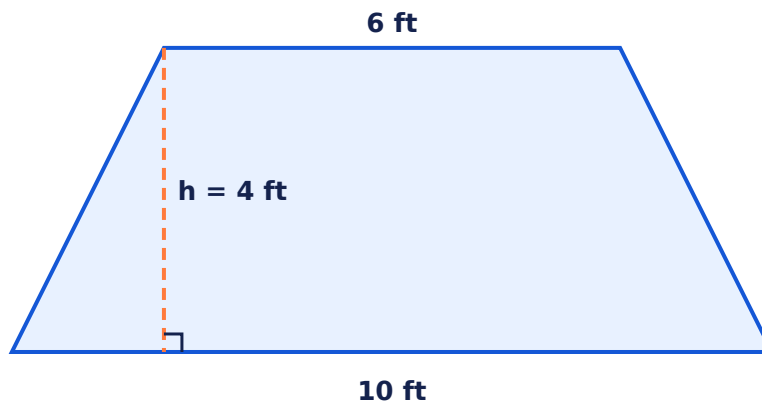
Shape	Formula
Rectangle	$A = lw$
Parallelogram	$A = bh$
Triangle	$A = \frac{1}{2}bh$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$



A parallelogram: base 9 ft and height 5 ft give 45 square feet.



A triangle: base 10 ft and height 6 ft give 30 square feet.



A trapezoid with parallel sides 6 ft and 10 ft, height 4 ft.

Why do these formulas work?

Cut a right triangle off one end of a parallelogram and slide it to the other end: the result is a rectangle with the same base and height. Two copies of any triangle fit together into a parallelogram, so a triangle holds half the area. Two copies of a trapezoid, one flipped, make a parallelogram with base $b_1 + b_2$.

Common mistake

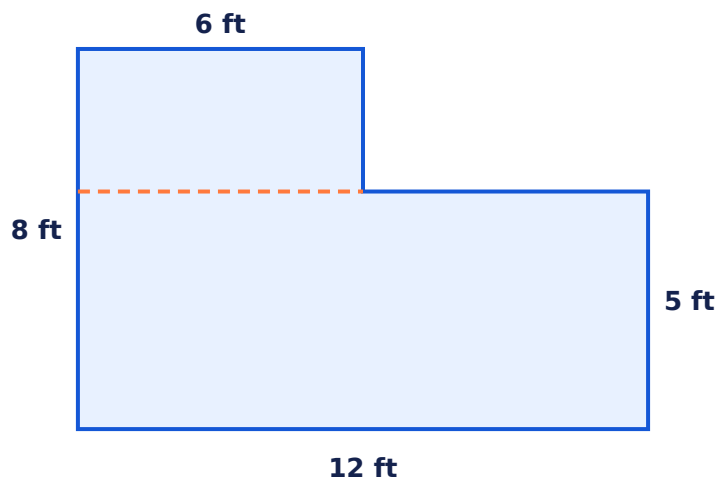
Using the slanted side as the height. In the parallelogram above, the dashed segment is the height, not the sloping edge.

How do you find the area of a composite polygon?

Method: decompose and add

1. Draw dashed lines that split the polygon into rectangles and triangles.
2. Find any missing side lengths by adding or subtracting.
3. Calculate each piece with its own formula.

4. Add the areas and write square units.



An L-shaped floor split by a dashed line into two rectangles.

Worked example

The floor above is 12 ft wide and 8 ft tall on the left. The dashed line leaves a 12 ft by 5 ft rectangle below and a 6 ft by 3 ft rectangle above, because $8 - 5 = 3$.

$12 \times 5 = 60$ and $6 \times 3 = 18$, so the area is $60 + 18 = \mathbf{78 \text{ square feet}}$.

Mathbot's tip

If adding pieces feels messy, try subtracting: draw the full rectangle, then remove the notch. Both ways must match.

Key points to remember

- Parallelogram area is base times perpendicular height: $A = bh$.
- A triangle is half of a parallelogram with the same base and height: $A = \frac{1}{2}bh$.
- A trapezoid uses the average of its two parallel sides: $A = \frac{1}{2}(b_1 + b_2)h$.
- A composite polygon is split into simple shapes whose areas are added or subtracted.
- Area is measured in square units such as square feet or square meters.

Finding the Area of Flat Shapes: frequently asked questions

What is the height of a triangle?

The height is the perpendicular distance from the base to the opposite vertex. It can fall inside the triangle, along a side of a right triangle, or outside an obtuse triangle.

Why is the triangle formula one half of base times height?

Two identical triangles can be joined to form a parallelogram with the same base and height. The parallelogram has area bh , so one triangle has half of that.

How do you find the area of a trapezoid?

Add the two parallel sides, multiply by the height, and take half. This is the same as multiplying the average of the parallel sides by the height.

How can you find a missing side in a composite figure?

Add or subtract the lengths that lie along the same straight line. If the whole left side is 8 feet and part of it is 5 feet, the rest is 3 feet.

Why is area written in square units?

Area counts squares that cover the shape, so each square has a side of one unit. Square feet, square inches and square meters are the usual units.