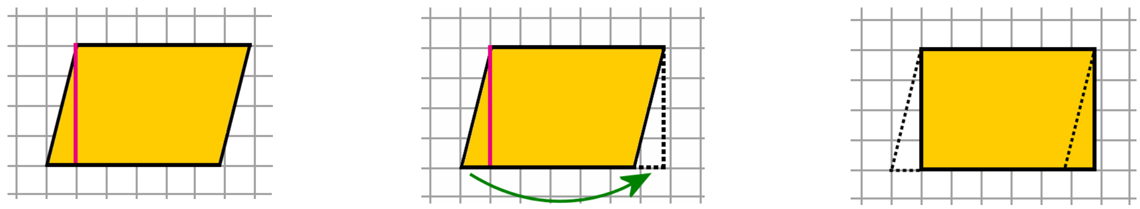
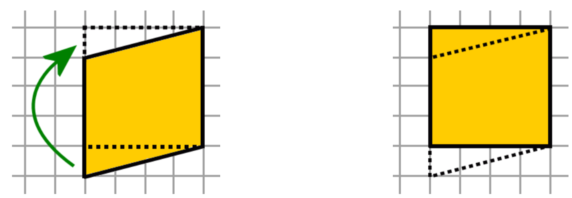
# Area of Parallelograms



We draw a line from one vertex of the parallelogram in order to form a *right triangle*. Then we move the triangle to the other side, as shown. Look! We get a *rectangle*!

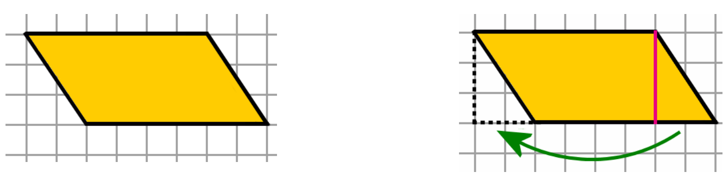
The rectangle's area is $6 \cdot 4 = 24$ square units, and that is *also the area of the original parallelogram*.

It works here, as well. The area of the rectangle and of the parallelogram are the same: both have the area of $4 \cdot 4 = 16$ square units.

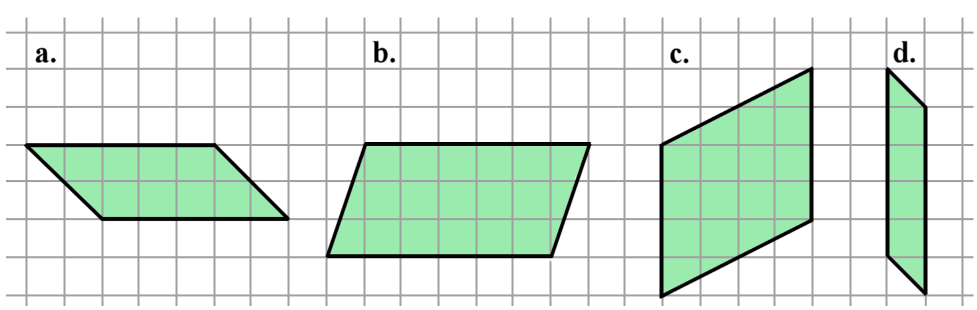


**The area of a parallelogram is the same as the area of the corresponding rectangle.**
You construct the rectangle by moving a right triangle from one side of the parallelogram to the other.

1. Imagine moving the marked triangle to the other side as shown. What is the area of the original parallelogram?



2. Draw a line in each parallelogram to form a right triangle. Imagine moving that triangle to the other side so that you get a rectangle, like in the examples above. Find the area of the rectangle, thereby finding the area of the original parallelogram.




**a.** __________ square units **b.** __________ square units

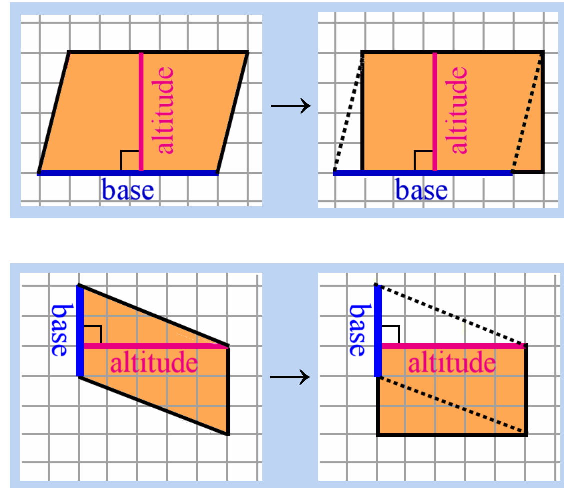
**c.** __________ square units **d.** __________ square units

One side of the parallelogram is called the **base**. You can choose any of the four sides to be the base, but people often use the “bottom” side.

A line segment that is *perpendicular* to the base and goes from the base to the opposite side of the parallelogram is called the **altitude**.

When we do the trick of “moving the triangle,” we get a rectangle. One of its sides is congruent (has the same length) to the parallelogram’s *altitude*. The other side is congruent to the parallelogram’s *base*.

That is why you can simply multiply **BASE** × **ALTITUDE** to get the area of a parallelogram.




3. Draw an altitude to each parallelogram. Highlight or “thicken” the base. Then find the areas.

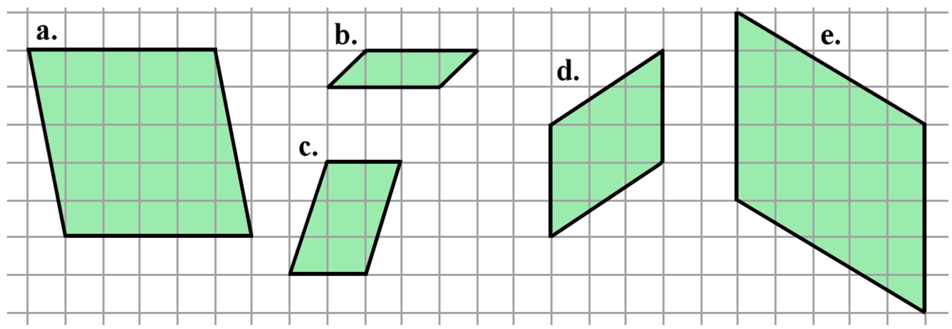
**a.** __________ sq. units

**b.** __________ sq. units

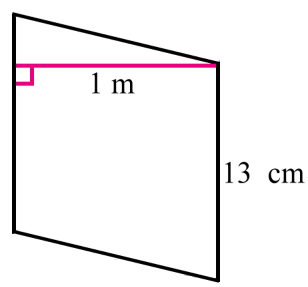
**c.** __________ sq. units

**d.** __________ sq. units

**e.** __________ sq. units




4. Find the area of the parallelogram in square *centimeters*.




5. Find the area of the parallelogram in square meters.