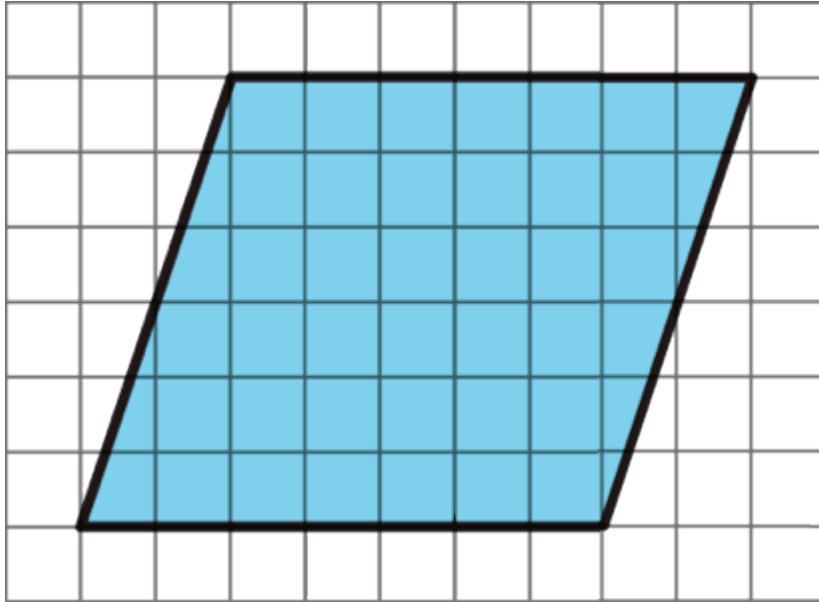


Unit 1 Lesson 5: Bases and Heights of Parallelograms

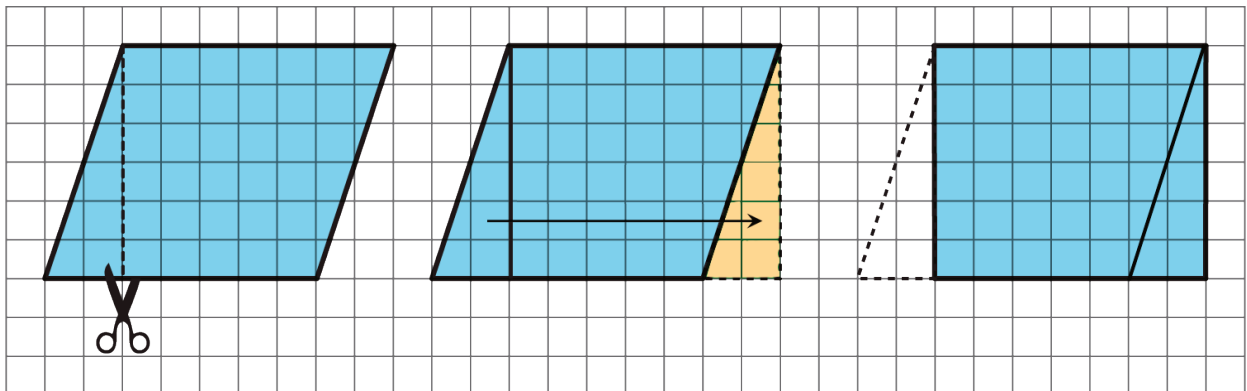
1 A Parallelogram and Its Rectangles (Warm up)

Student Task Statement

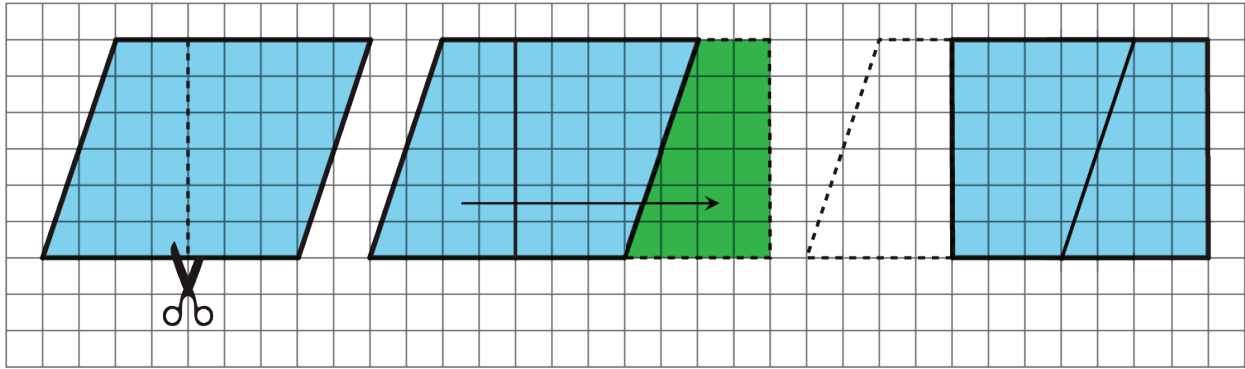
Elena and Tyler were finding the area of this parallelogram:



Here is how Elena did it:

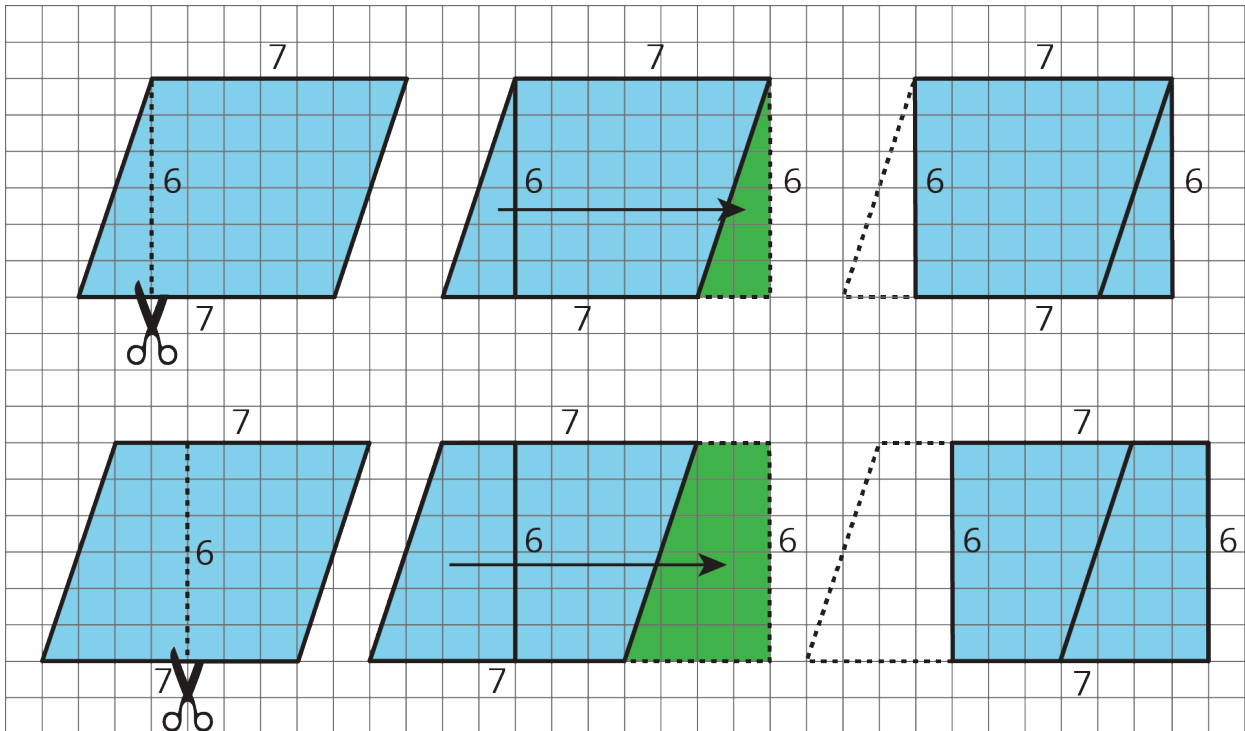


Here is how Tyler did it:



How are the two strategies for finding the area of a parallelogram the same? How they are different?

Activity Synthesis

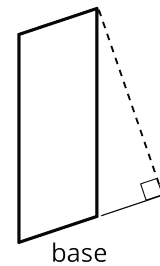
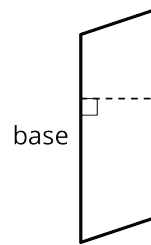
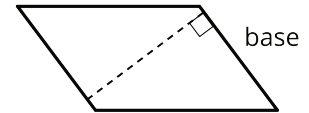
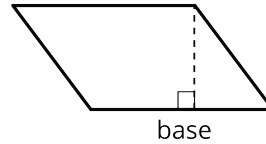


2 The Right Height?

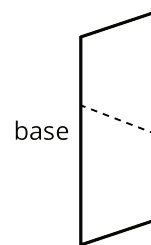
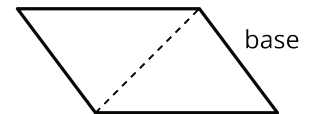
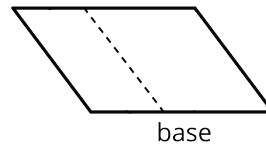
Student Task Statement

Study the examples and non-examples of **bases** and **heights** of parallelograms.

- Examples: The dashed segments in these drawings represent the corresponding height for the given base.



- Non-examples: The dashed segments in these drawings do *not* represent the corresponding height for the given base.

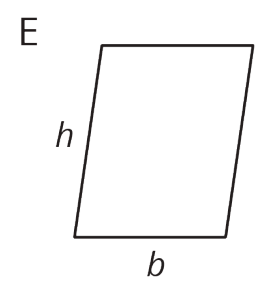
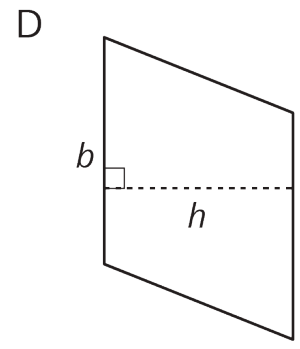
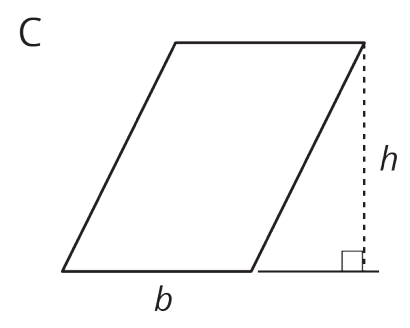
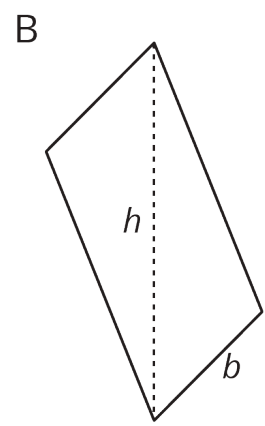
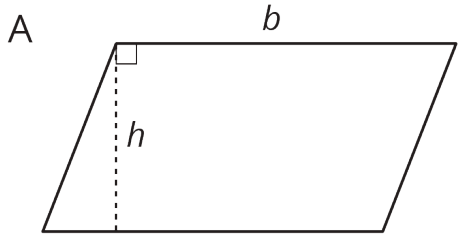


1. Select **all** the statements that are true about bases and heights in a parallelogram.

- Only a horizontal side of a parallelogram can be a base.
- Any side of a parallelogram can be a base.
- A height can be drawn at any angle to the side chosen as the base.
- A base and its corresponding height must be perpendicular to each other.
- A height can only be drawn inside a parallelogram.
- A height can be drawn outside of the parallelogram, as long as it is drawn at a 90-degree angle to the base.

g. A base cannot be extended to meet a height.

2. Five students labeled a base b and a corresponding height h for each of these parallelograms. Are all drawings correctly labeled? Explain how you know.

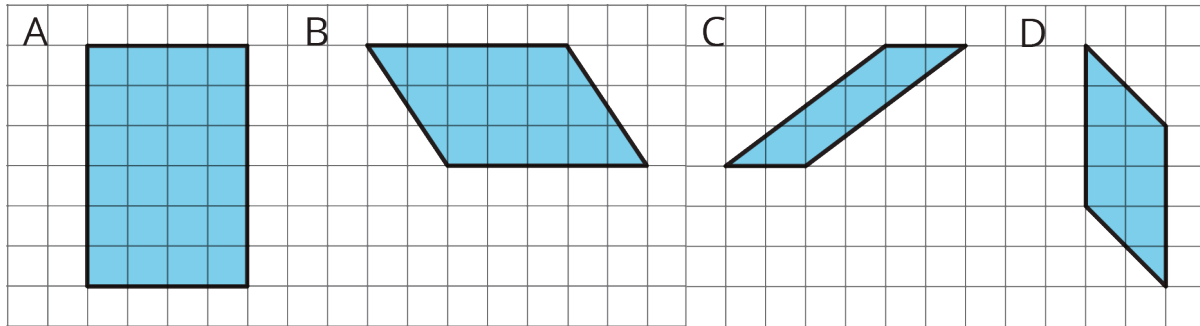


3 Finding the Formula for Area of Parallelograms

Student Task Statement

For each parallelogram:

- Identify a base and a corresponding height, and record their lengths in the table.
- Find the area of the parallelogram and record it in the last column of the table.



parallelogram	base (units)	height (units)	area (sq units)
A			
B			
C			
D			
any parallelogram	b	h	

In the last row, write an expression for the area of any parallelogram, using b and h .