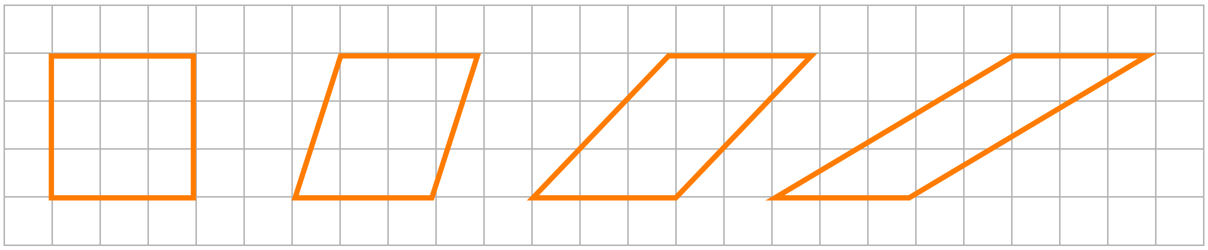
Area of a Parallelogram

Extend Your Learning
Answers and Explanations

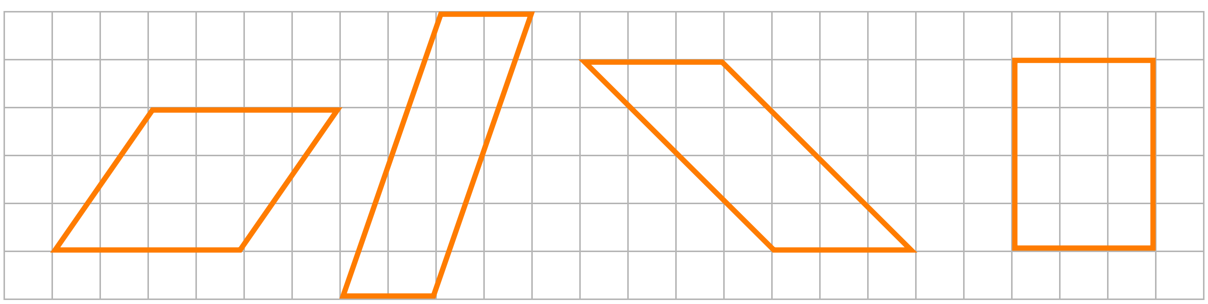
1. On the grid below, draw three parallelograms that are not congruent. Make the base of each parallelogram 3 units and the height of each parallelogram 3 units.
   Four possible parallelograms are shown below. There are many more possible.



   Do the parallelograms have the same perimeter? Why or why not?
   No. The top and bottom sides of each parallelogram are the same (3 units), but the other side lengths are different. Therefore the perimeters are not the same.

   Do the parallelograms have the same area? Why or why not?
   Yes. Each parallelogram has the same base and height, so they also have the same area. The area of each parallelogram is 9 square units (3 • 3 = 9).

2. On the grid below, draw three different parallelograms with an area of 12 square units.
   Four possible parallelograms are shown below. There are many more possible.

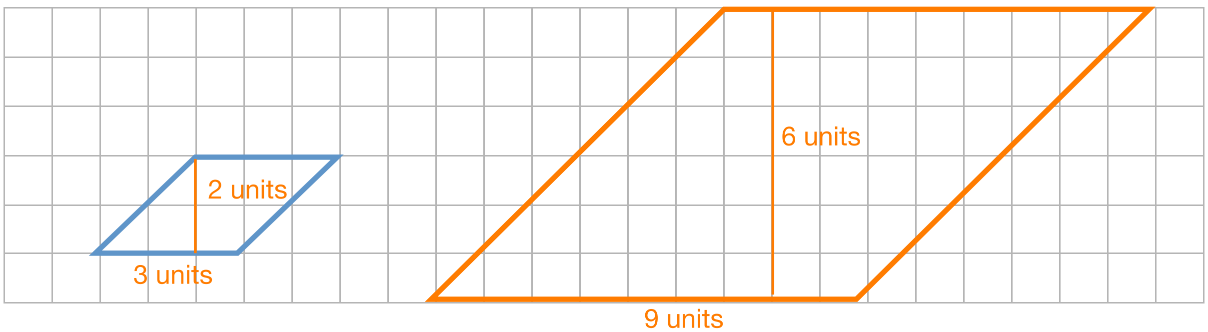


   List all possible whole numbers you could use for the base and corresponding height of a parallelogram with an area of 12 square units.

base	height
1	12
2	6
3	4
4	3
6	2
12	1

The table shows all possible whole numbers you could use for the base and height of a parallelogram with an area of 12 square units. You could draw many different parallelograms with each base and height listed in the table.

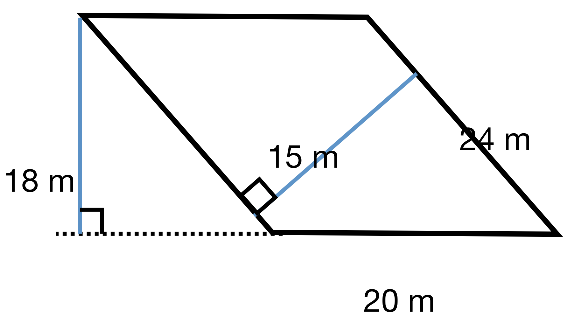
3. Sketch a parallelogram that is similar to the following parallelogram. Make the base and height of your new parallelogram triple the lengths of the original base and height.

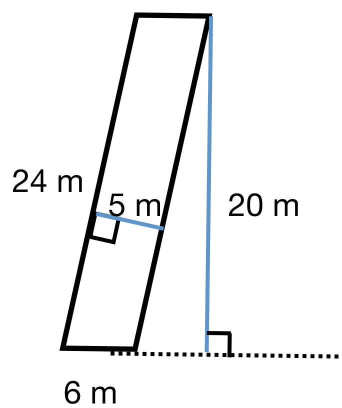


Find the area of each parallelogram.
The area of the original parallelogram is 6 square units (3 • 2 = 6).
The area of the new parallelogram is 54 square units (9 • 6 = 54).

Describe what happened to the area when the base and height were tripled.
The area of the new parallelogram is 9 times as large as the area of the original parallelogram.

4. Show two different ways to find the area of each of the following parallelograms. Use a different base and height for each.





Method 1:
A = 20 • 18
= 360 sq. m

Method 2:
A = 24 • 15
= 360 sq. m

Method 1:
A = 24 • 5
= 120 sq. m

Method 2:
A = 6 • 20
= 120 sq. m