Math 191 Fundamentals of Mathematics II
12.4: Areas of Parallelograms and other Polygons
February 17, 2014

Areas of Parallelograms

1. Look at the parallelograms on the separate sheet. All have two sides that are 3 units long and two sides that are 7 units long. (Note: the vertices aren't necessarily at the corners of the grid lines.)

(a) Using the moving and additivity principles, are the areas of the parallelograms?

(b) Can there be a formula for the areas of parallelograms that is only in terms of the side lengths? Explain why or why not.

Instead of using the side lengths to compute the area of a parallelogram, we use the base and height, like with triangles.

The *base* is _____. In the formula, b really means _____.

After the base is chosen, the *height* is the _____ with the properties

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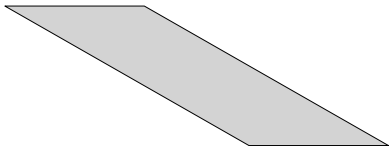

The formula for the area of a parallelogram is

In the formula, we assume that b and h are measured using _____.

Why is the Formula Valid?

2. Using the parallelogram below, explain why the formula is valid in at least two different ways.