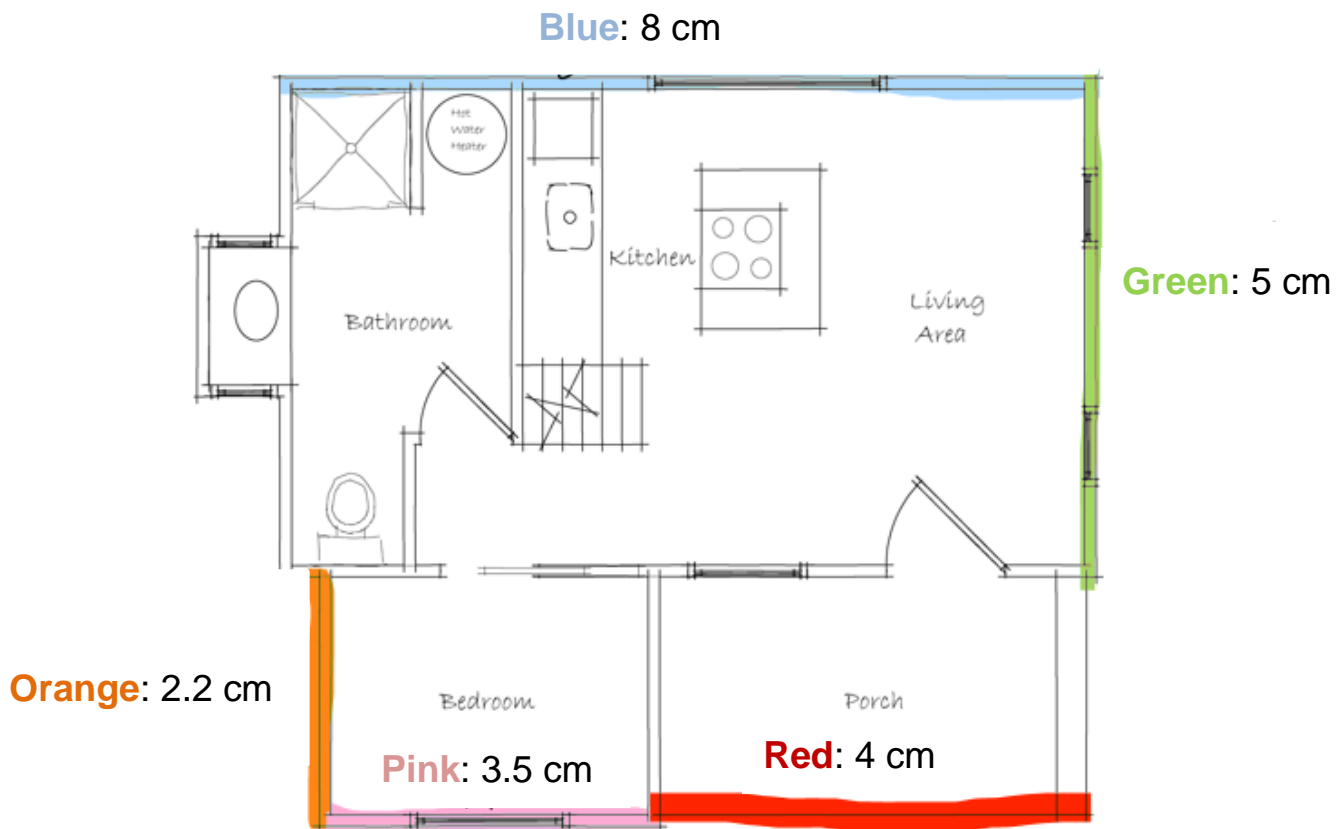Name: _____ Exploration Date:_____

MEGA Math Mini-Homes – Junior High Edition
Unit Conversions and Area of Shapes

Part 1: Conversions with Scale Drawings

With scaled drawings, like floor plans or a map, we use a scale (sometimes called a key) to determine the conversion factor between different units of measurement. This helps us visualize things that are either very large or very small. For example, one centimeter on a scaled drawing of a building can represent 3 feet in real life (i.e, 1 cm = 3 feet).

In the scaled drawing below, ==one centimeter will represent 3 feet.==

Blue: 8 cm

Green: 5 cm

Orange: 2.2 cm

Pink: 3.5 cm

Red: 4 cm

1. Convert the highlighted regions above in measurements to feet in your STEM journal. **(i.e. from cm to ft)**

   Blue: Orange:

   Green: Pink:

   Red:

-next page-

2. The bathroom's width is 9 feet in real life, how long would this width be on the scale drawing in centimeters? Solve for this in your STEM journal.

Part 2: Finding Area

The Mathliens want to place the following items in their floor plan, but first they need the area of each to see if they will fit. Calculate the area of each object below. <mark>Recall the cool rap video to assist you in calculating the area of each shape!</mark> *You may write your calculations in your STEM journal.*

Make sure each answer is in square feet!

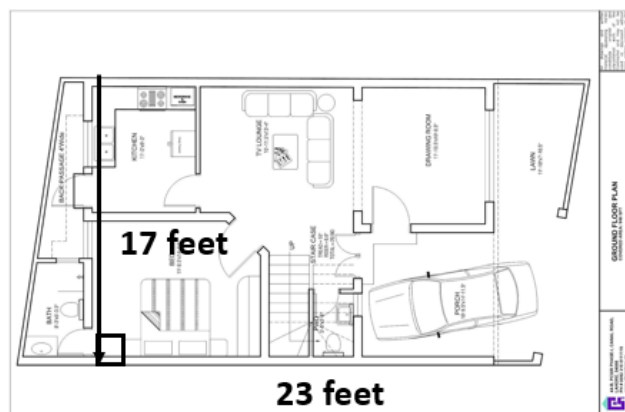|	
1. A rectangular bed. Shape: _____ Area calculation:	 6.5 ft 4 ft
2. A trapezoidal rug. Shape: _____ Area calculation:	2 feet 3 feet 4 feet
3. A square table Shape: _____ Area calculation:	3 ft 3 ft

-next page-

4. A parallelogram-shaped floor plan.
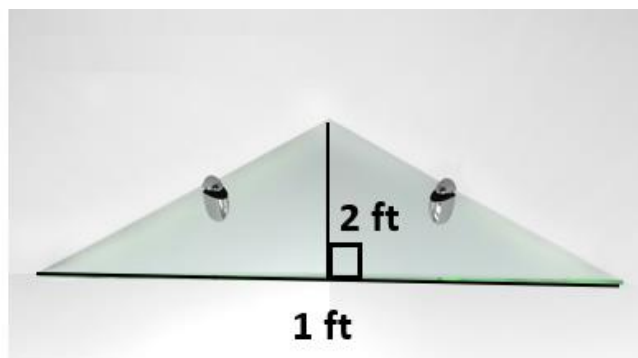Shape: _____
Area calculation:

17 feet

23 feet

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5. A triangular shelf.
Shape: _____
 Area calculation:

2 ft

1 ft

Bonus Questions:
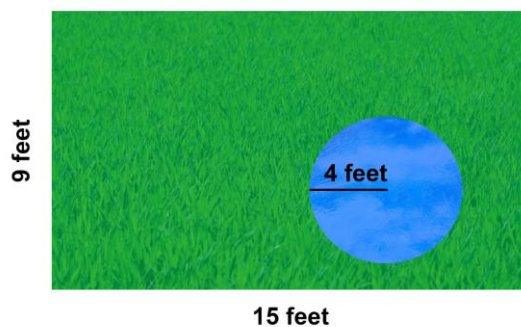6. A circular jacuzzi. (Use 3.14 for π)
Shape: _____
Area calculation:

4 ft

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7. Area of backyard <u>WITHOUT</u> the pool.
    (Use 3.14 for π)
Shape: _____
Area calculation:

9 feet

4 feet

15 feet

Name: _____   Exploration Date:_____

Part 3: Creating your own mini-home

Now it is time to create your own floor plan! It can be any design, so be creative! If you would like to draw out your own floor plan in your STEM journal, you are welcome to do so! **Most importantly, make sure you include a conversion reference! (i.e. 1 square = 2 feet)**

Remember that the maximum area for your mini-home is 500 square feet. *8th Graders: Make sure to include circles in your floor plan!*