

Assignment 2.

1. Write out answers to the CMP evaluation based on your assigned unit. [Optional: Read over the other units as much as possible to get a good sense of what is going on there. You will need this for Assignment 3.]
2. Suppose you take a mug hat and transform it by the following coordinate rules. Which ones are scaling transformations that do not change shape (and why)? Give reasons and also some examples if necessary.
 - (a) (x,y) becomes $(5x-2, 5y+3)$.
 - (b) (x,y) becomes $(2x-5, 3y+5)$
 - (c) (x,y) becomes $(-x, -y)$
3. Let ABC be a triangle with C a right angle. The side lengths are $|AB| = c$, $|BC| = a$, $|CA| = b$. Draw a point D on side AB so that the angle ADC is a right angle. Then triangles ACD and BCD are also right triangles.
 - (a) Explain whether or not these new triangles are similar to the old ones. If so, what are the corresponding angles and what is each scaling factor from ABC to the new triangles.
 - (b) Tell what the scaling factors are when $a = 3$, $b = 4$, $c = 5$.
 - (c) If the area of triangle ABC is T , what are the areas of ACD and BCD ?

Draw the figures reasonably accurately as part of your answer. Answer in complete sentences.

How would you explain to a student why the smaller triangles are similar to ABC ?