Questions on 6.2 HW?

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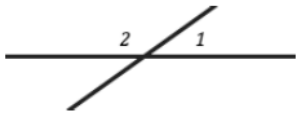

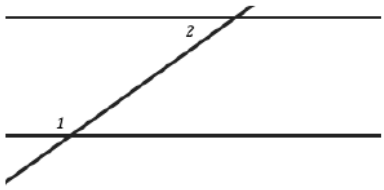

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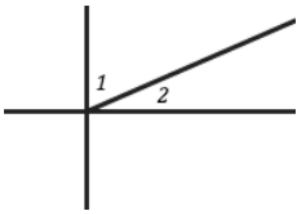

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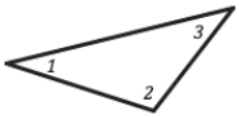

a. Alternate Interior Angles b. Vertical Angles c. Complementary Angles

d. Triangle Sum Theorem e. Linear Pair f. Same Side Interior Angles

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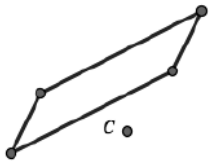
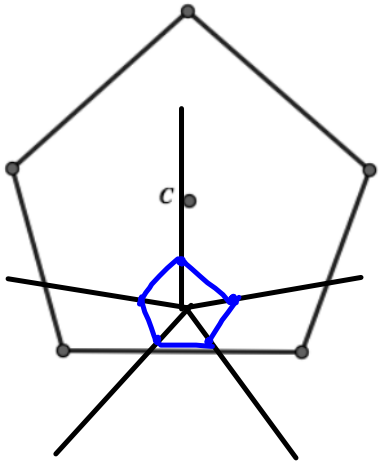
ıte an image with side lengths three
he size of the given parallelogram.



10. Create an image with side length one fourth the size of the given pentagon.



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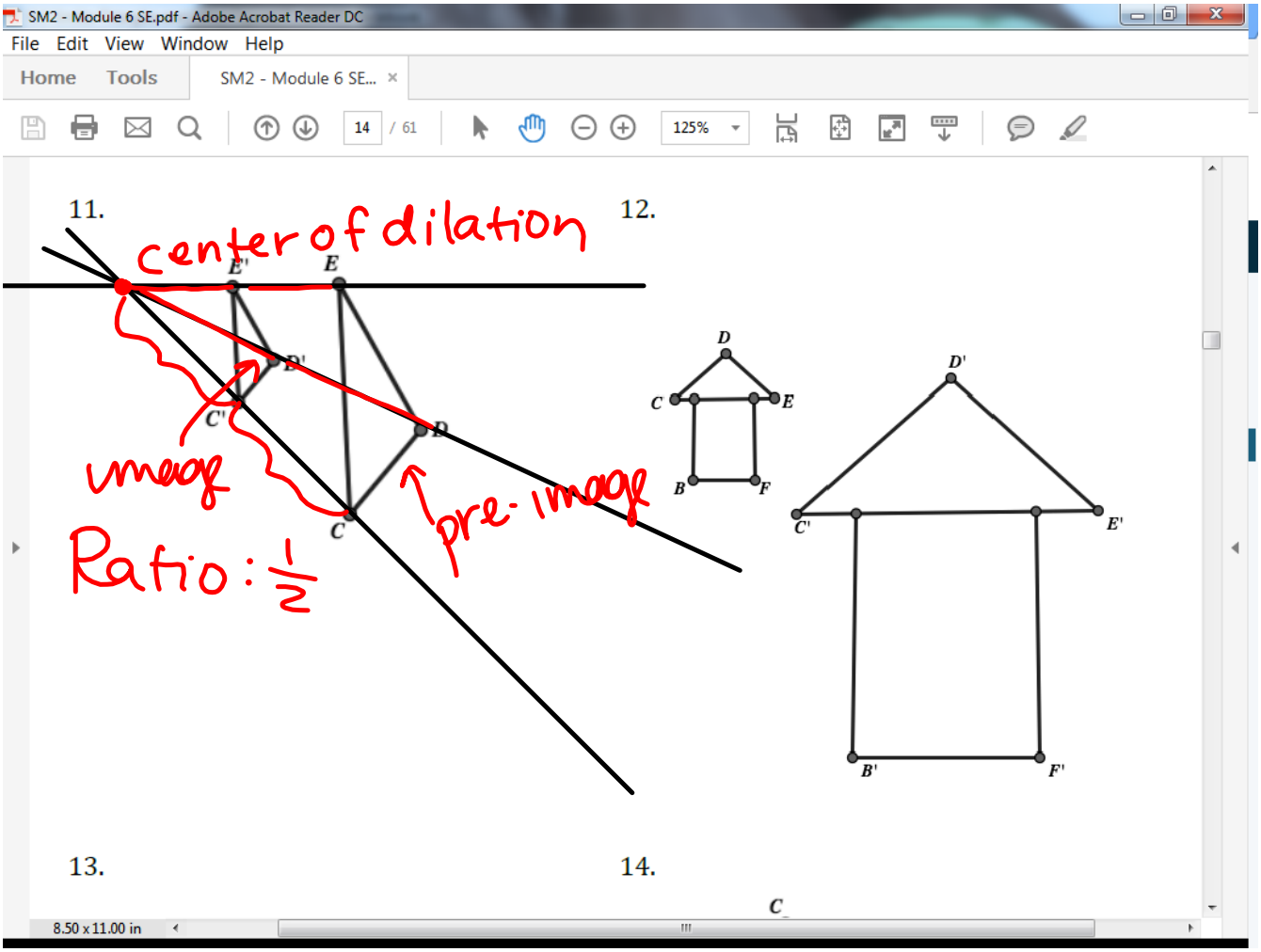
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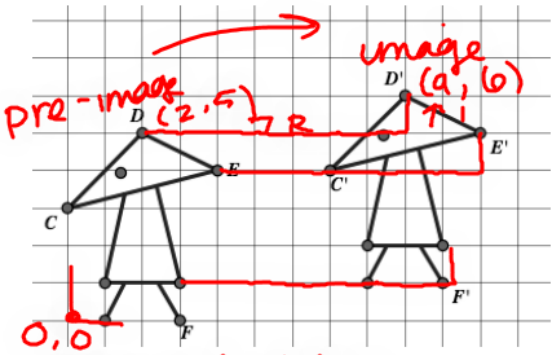

translation

(x+7, y+1)

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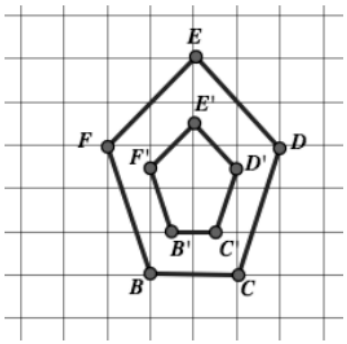

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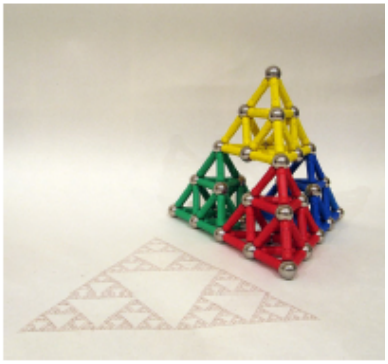
6.3 Similar Triangles and Other Figures

A Solidify Understanding Task



Two figures are said to be *congruent* if the second can be obtained from the first by a sequence of rotations, reflections, and translations. In Mathematics I we found that we only needed three pieces of information to guarantee that two triangles were congruent: SSS, ASA or SAS.

What about AAA? Are two triangles congruent if all three pairs of corresponding angles are congruent? In this task we will consider what is true about such triangles.

Part 1

Definition of Similarity: Two figures are *similar* if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations.

& corresponding ∠s are ≅, and corresponding side lengths are proportional.

Mason and Mia are testing out conjectures about similar polygons. Here is a list of their conjectures.

Conjecture 1: *All rectangles are similar.* No

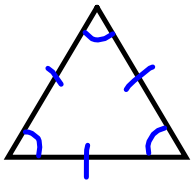
Conjecture 2: *All equilateral triangles are similar.* Yes

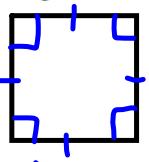
Conjecture 3: *All isosceles triangles are similar.* No

Conjecture 4: *All rhombuses are similar.* No

Conjecture 5: *All squares are similar.* Yes

1. Which of these conjectures do you think are true? Why?





2 & 5 are true, because squares & equilateral △ are regular polygons, which means that each shape has all sides & angles congruent.

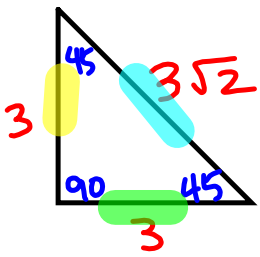
While the definition of similarity given at the beginning of the task works for all similar figures, an alternative definition of similarity can be given for polygons: **Two polygons are similar if all corresponding angles are congruent and all corresponding pairs of sides are proportional.**

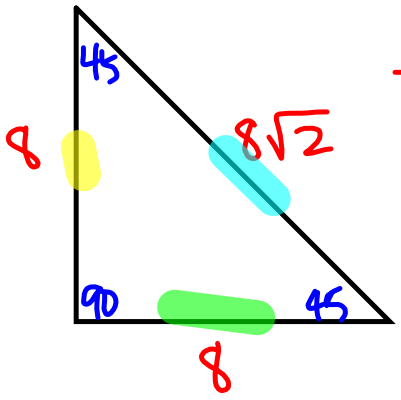
Part 2 (AAA Similarity)

From our work above with rectangles it is obvious that knowing that all rectangles have four right angles (an example of AAAA for quadrilaterals) is not enough to claim that all rectangles are similar. What about triangles? In general, are two triangles similar if all three pairs of corresponding angles are congruent?

8. Decide if you think the following conjecture is true.

Conjecture: *Two triangles are similar if their corresponding angles are congruent.*





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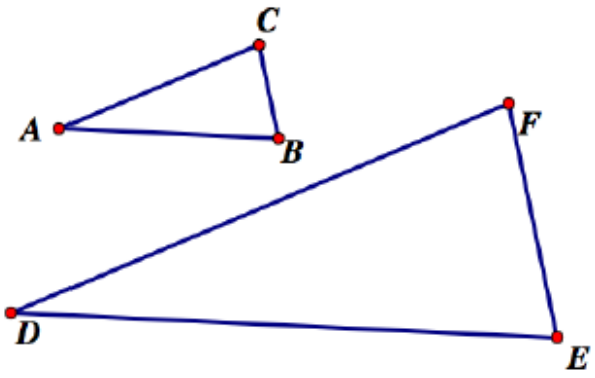
9. Explain why you think the conjecture—*two triangles are similar if their corresponding angles are congruent*—is true. Use the following diagram to support your reasoning, Remember to start by marking what you are given to be true (AAA) in the diagram.

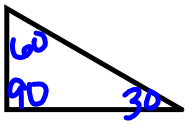


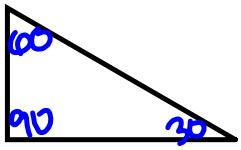
Hint: *If you translate A to D, where do points B and C end up?*

10. Mia thinks the following conjecture is true. She calls it "*AA Similarity for Triangles.*" What do you think? Is it true? Why?

Conjecture: *Two triangles are similar if they have two pair of corresponding congruent angles.*

AA Similarity





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Homework

Finish 6.3 "Ready, Set, Go"

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