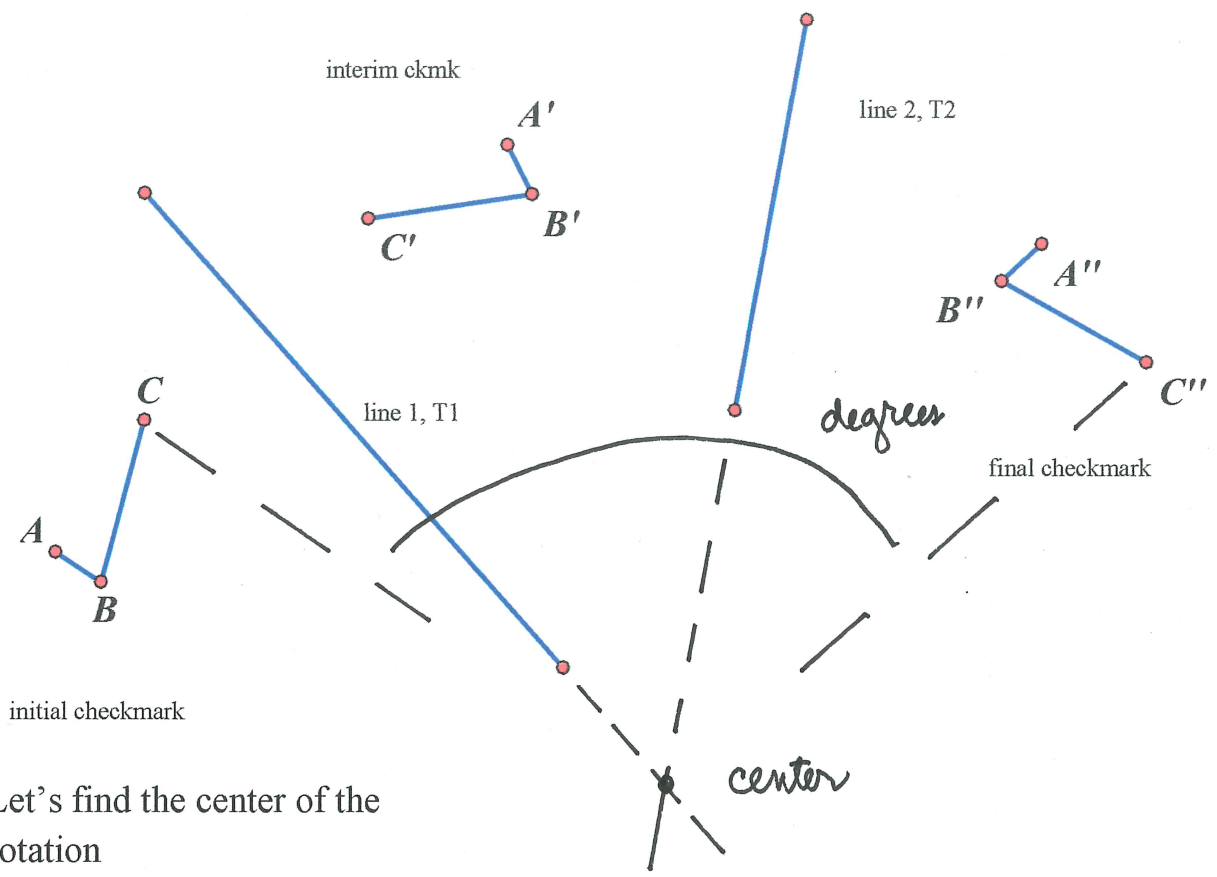


Chapter 4 Rotations Video C

Now suppose I want to do TWO reflections in a row. T1 and T2 with the numbers indicating the order of the reflections...T2 is second. And the lines of symmetry are **intersecting** rather than parallel... $T2 \circ T1$, remember!



Let's find the center of the rotation

And everyone wants to say: WAIT! The "tail" is pointing left and now it's pointing "right"...how is this direct?

Let's do a little experiment:

Stand up and lift your right arm up straight, and then bend your wrist so your fingers point left. Rotate your arm down to shoulder height without twisting it. Now your fingers are pointing up. Then lower your arm,

Again without twisting it so it points down and your fingers are pointing right.

Since you didn't twist, there are no single reflections and you didn't reflect your arm to the left side. Rotations with rigid objects look slightly different because of the circular motion. You can practice with a pencil and a paperclip – fasten the paperclip on the pencil with one side poking out. Carefully rotate the pencil without twisting or flipping and you'll see it even more.

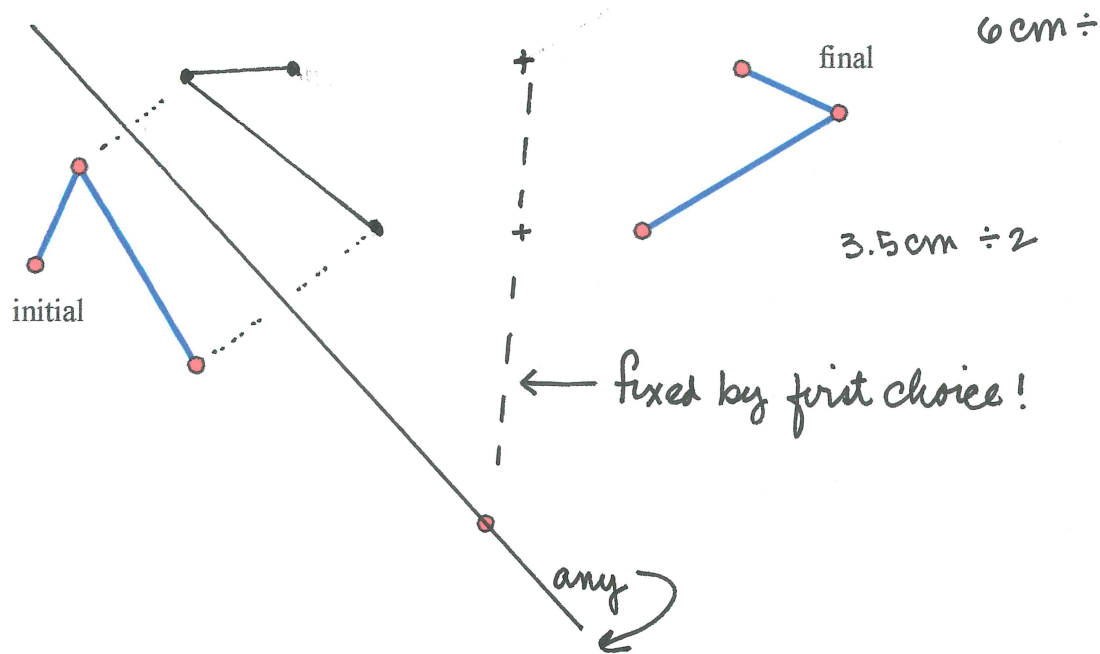
It takes just a bit of getting used to visually.

Chapter 4 Popper Question 7

A rotation is an isometry.

- A. True
- B. False

Let's do a practice exercise with the lines of reflection NOT showing and with the center of the rotation showing! Note, then you have some things but not everything about inserting lines of reflection. Let's look at my choices.



Rotations, no matter how the instructions are given, are DIRECT motions. Also called EVEN motions or orientation preserving.

Rotations

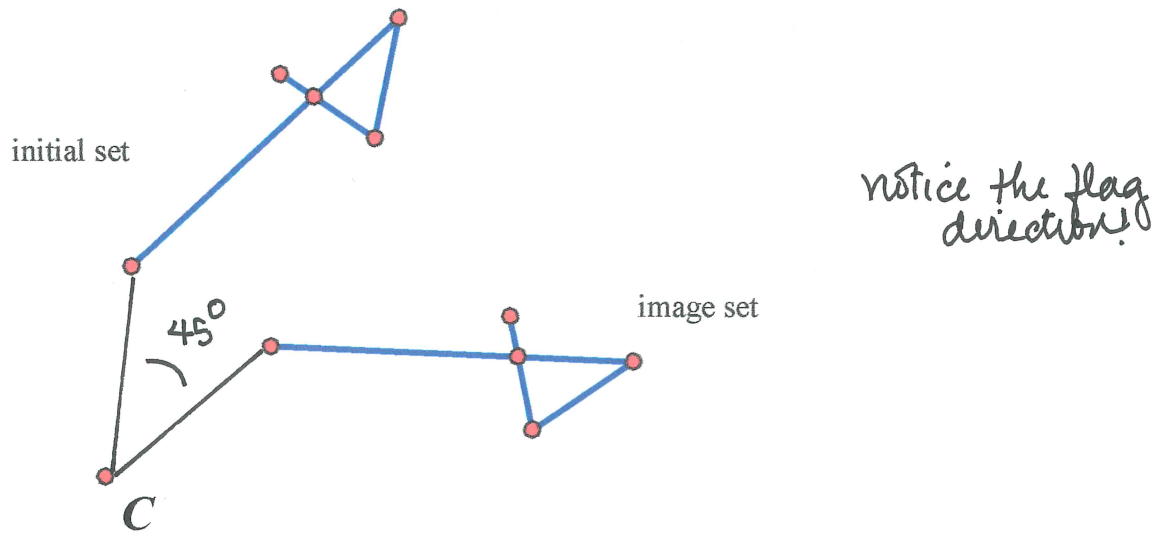
text: p. 143

A rotation can be given in degrees and has a fixed point called the center of rotation. Rot(30, C) checkmark

For example:

Rotate the point set 45 degrees clockwise around point C.

Next page:



Look at how to “see” the 45 degrees when the center of the rotation is showing!

Note: it’s direct; it’s an isometry – the line segments and angles measure the same before and after the motion...

Chapter 4 Essay 2

Write a BRIEF essay comparing and contrasting Translations and Rotations. One page front side only, please

Ms. Leigh’s Problem Homework

Take an object and rotate it 60 degrees about a point of your choosing. Show the interim object, the lines of reflection and the center of the rotation in your sketch.

Chapter 4 Popper Question 8

Rotations are also called even rigid motions in the plane.

- A. True B. False