Math 133
Fall 2021

CORRECTION TO `exercises12.pdf` AND `solutions12.pdf`

For these exercises assume that the coordinate plane satisfies the axioms for Euclidean plane geometry, with distances and lines as described in Chapter 17 of Moise. Most of what we need about rigid motions and similarities appears in `lecture12.pdf`.

There is a small inaccuracy in the statements of some exercises, and some reasoning in the solutions require changes to reflect these omissions.

1. There should be a second part to this problem; namely, the isometry takes an **infinite** maximal collinear subset which is infinite to an **infinite** maximal collinear set which is also infinite. The proof of this is straightforward: If M is also an infinite set, then $h[M]$ is also infinite, and if $h[M]$ is an infinite maximal collinear subset then the maximal collinear subset M must also be infinite.■

2. (a) Change the first sentence to "The **infinite** maximal collinear subsets of $\angle ABC$ and $\angle DEF$ are $[BA$ and $[BC$ for $\angle ABC$ and $[ED$ and $[EF$ for $\angle DEF$".■

3. (a) Change the second sentence to read, "Clearly the edges $[AB]$, $[BC]$, $[CD]$ and $[AD]$ are all **infinite** collinear sets, and we claim each is maximal ..."

In the third paragraph change the second sentence to read, "Then h sends each of the maximal **infinite** collinear subsets containing A to a subset of the same type."■

The reason for this correction is that there each figure considered in the exercises has many maximal collinear subsets with exactly two points. For example, in $\angle XYZ$ one can take $\{U, V\}$ where $U \in (YX$ and $V \in (YZ$, and for the polygons one can take two points $\{U, V\}$ where neither is a vertex and the points lie on different edges as in the drawings below: