

A suggestion for using patty paper to copy a figure in a plane. Suppose a figure is drawn on a sheet of paper. Here is a procedure for using a piece of patty paper to draw a copy of the figure in a new position on the sheet of paper. This procedure takes on two different forms depending on whether the new figure is to be a *non-reflected copy* or a *reflected copy*. If the new figure is to be a *non-reflected copy* of the original figure (with the same orientation as the original figure), then follow *Procedure A*. However, if the new figure is to be a *reflected copy* of the original figure (with an orientation that is opposite to the orientation of the original figure), then follow *Procedure B*.

Procedure A (for non-reflected copies):

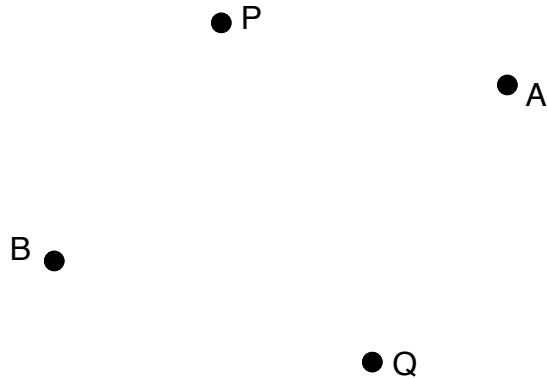
- 1) Lay the piece of patty paper over the figure. Call the side of the patty paper that is facing up “side 1” and call the other side “side 2”. Trace the figure on side 1 of the patty paper with a pencil.
- 2 Turn over the piece of patty paper and on side 2, trace over the image of the figure you’ve just drawn on side 1. (**Warning:** Do this step on top of a different sheet of paper to avoid making unwanted marks on the sheet of paper containing the original figure.)
- 3) Turn the piece of patty paper over again (so that side 1 is up) and move it so that the image of the figure on the patty paper is in the new position on the original sheet of paper.
- 4) Trace over the image of the figure on the patty paper. This will leave an impression of the figure in the new position on the original sheet of paper. Then trace over this impression on the original sheet of paper with your pencil to darken it.

Procedure B (for reflected copies):

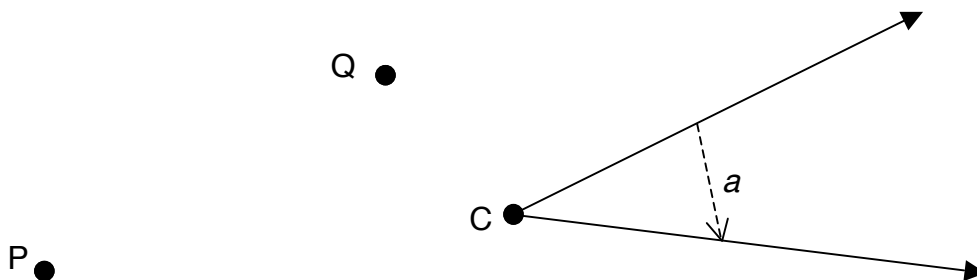
- 1) Lay the piece of patty paper over the figure. Call the side of the patty paper that is facing up “side 1” and call the other side “side 2”. Trace the figure on side 1 of the patty paper with a pencil. (This step is the same as Step 1 of Procedure A.)
- 2) Turn the piece of patty paper over so that side 2 is facing up and move it so that the image of the figure on the patty paper is in the new position on the original sheet of paper.
- 3) Trace over the image of the figure on the patty paper. This will leave an impression of the figure in the new position on the original sheet of paper. Then trace over this impression on the original sheet of paper with your pencil to darken it.

Activity 2. Groups should carry out this activity and report their results to the class. In parts a) through d) of this activity on the next two pages, devise techniques that use a pencil, a ruler and a piece of patty paper to perform the indicated geometric constructions, and carry out the constructions.

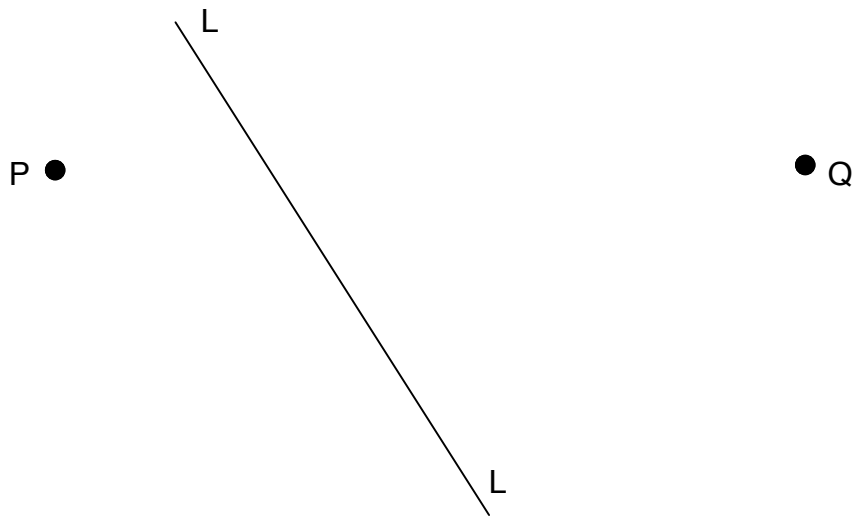
a) Construct and label the points $T_{A,B}(P)$ and $T_{A,B}(Q)$.



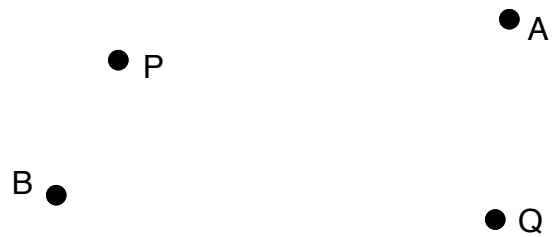
b) Construct and label the points $R_{C,a}(P)$ and $R_{C,a}(Q)$.



c) Construct and label the points $Z_L(P)$ and $Z_L(Q)$.

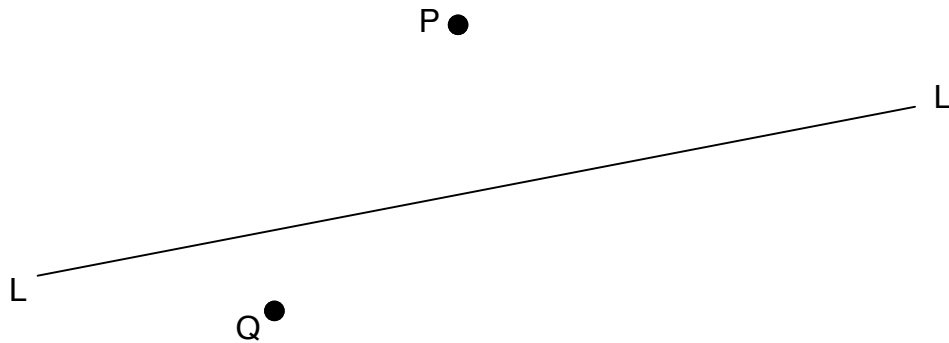


d) Construct and label the points $G_{A,B}(P)$ and $G_{A,B}(Q)$.

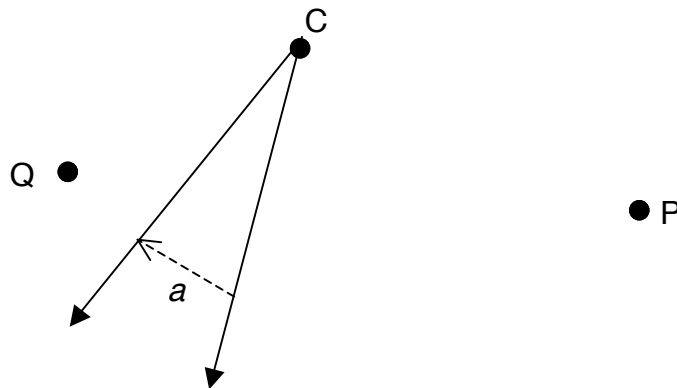


Homework Problem 1. In parts a) through d) of this problem on this page and the next, use a pencil, a ruler, and a piece of patty paper to perform the indicated geometric constructions.

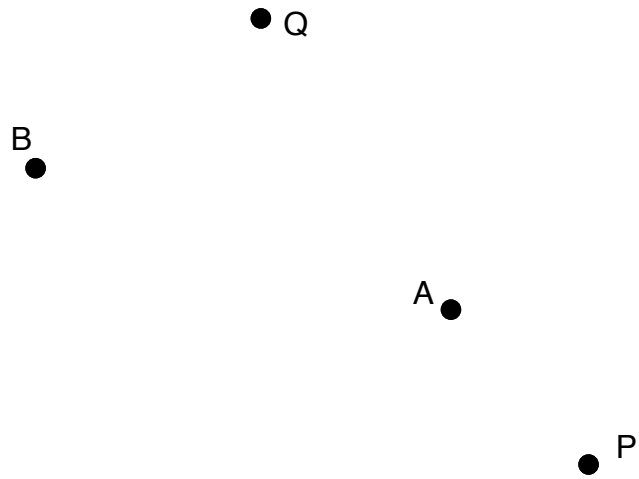
a) Construct and label the points $Z_L(P)$ and $Z_L(Q)$.



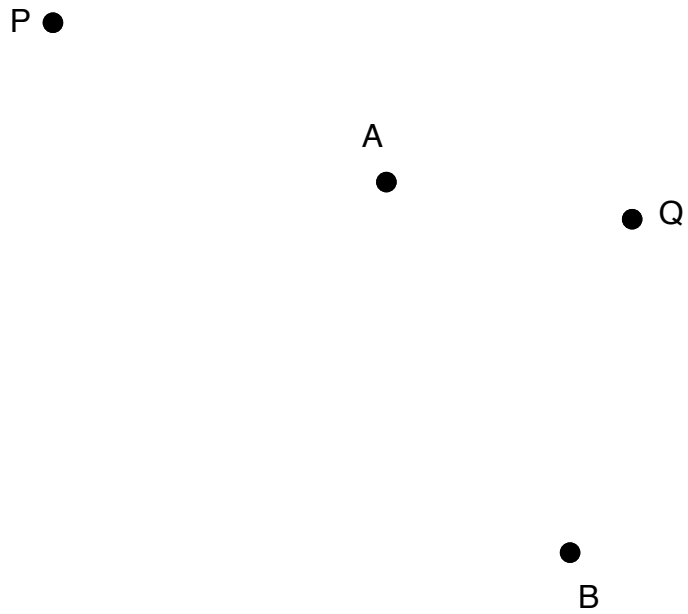
b) Construct and label the points $R_{C,a}(P)$ and $R_{C,a}(Q)$.



c) Construct and label the points $G_{A,B}(P)$ and $G_{A,B}(Q)$.

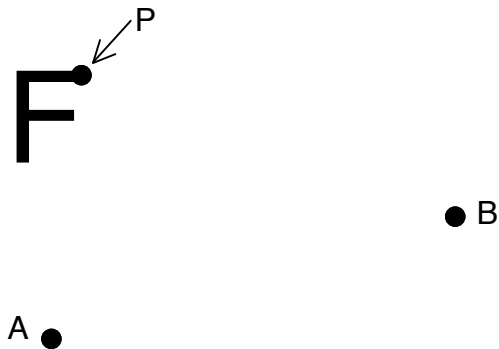


d) Construct and label the points $T_{A,B}(P)$ and $T_{A,B}(Q)$.

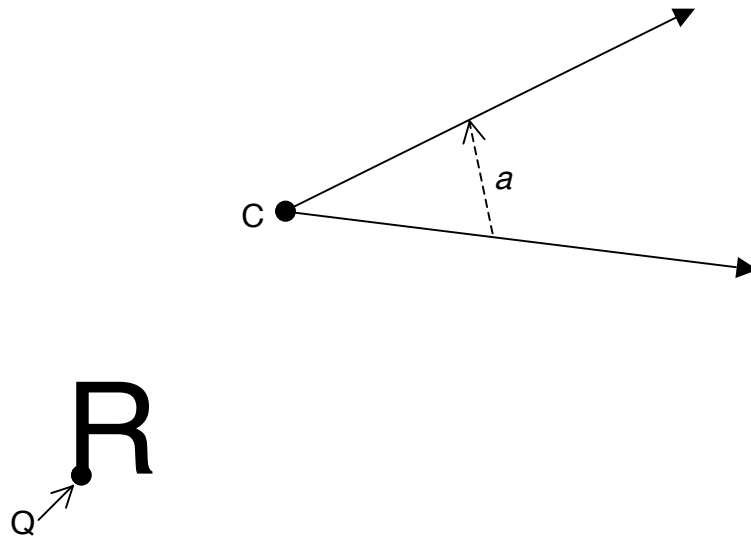


Homework Problem 2. In parts a) through d) of this problem on this and the next page, use a pencil, a ruler and a piece of patty paper to perform the indicated geometric constructions.

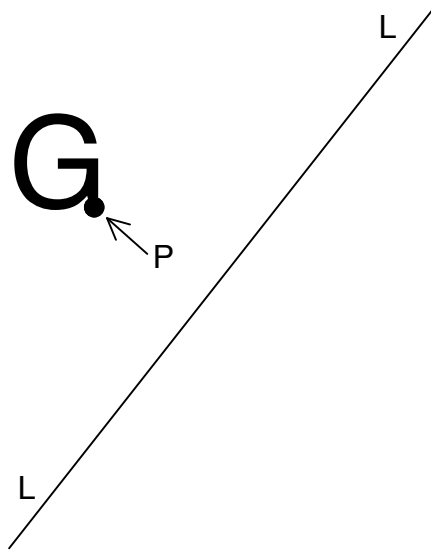
a) Construct and label the figure $T_{A,B}(\mathbf{F})$ and the point $T_{A,B}(P)$.



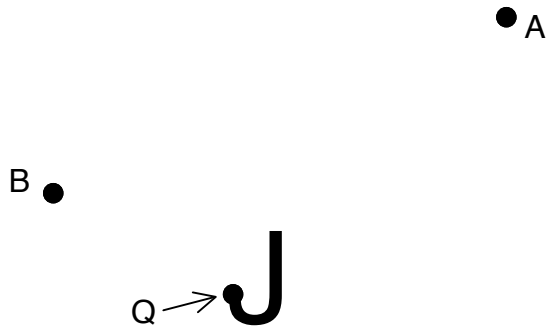
b) Construct and label the figure $R_{C,a}(\mathbf{R})$ and the point $R_{C,a}(Q)$.



c) Construct and label the figure $Z_L(\mathbf{G})$ and the point $Z_L(P)$.

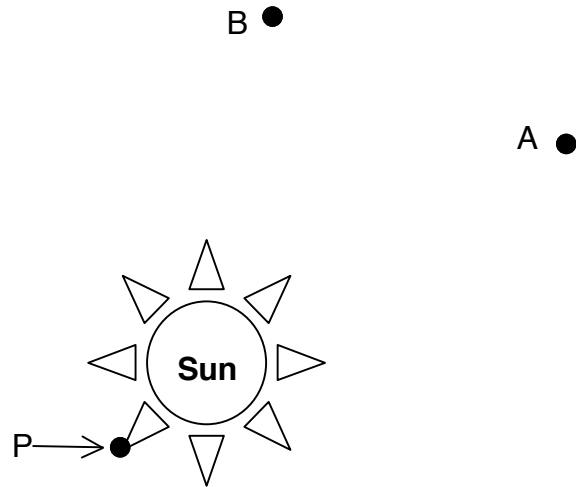


d) Construct and label the figure $G_{A,B}(\mathbf{J})$ and the point $G_{A,B}(Q)$.

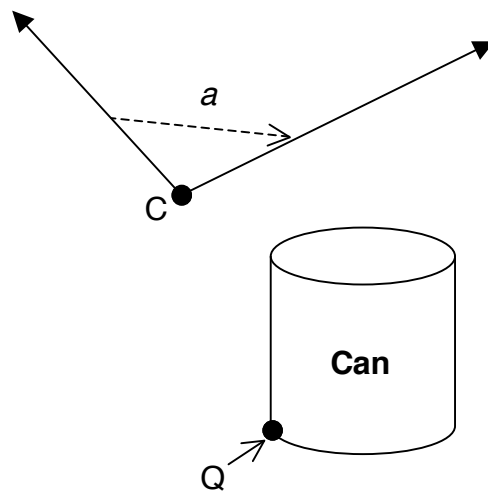


Homework Problem 3. In parts a) through d) of this problem on this page and the next page, use a pencil, a ruler and a piece of patty paper to perform the indicated geometric constructions.

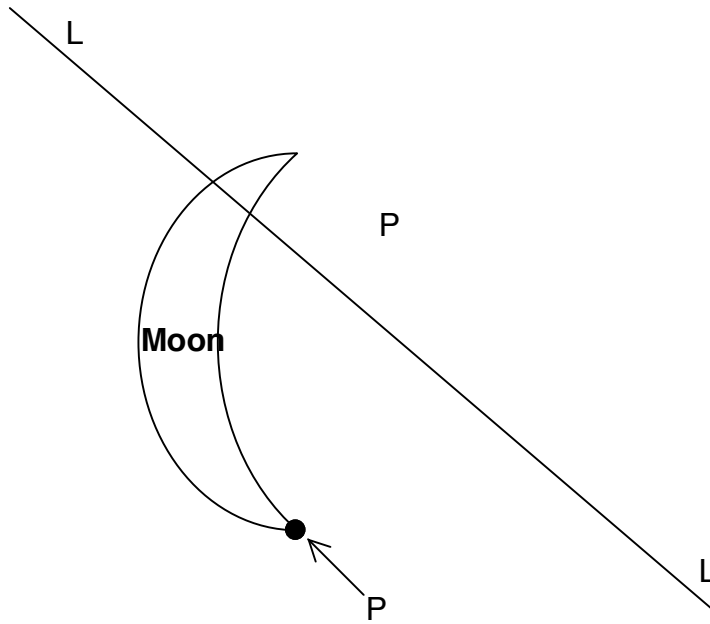
a) Construct and label the figure $T_{A,B}(\text{Sun})$ and the point $T_{A,B}(P)$.



b) Construct and label the figure $R_{C,a}(\text{Can})$ and the point $R_{C,a}(Q)$.



c) Construct and label the figure $Z_L(\mathbf{Moon})$ and the point $Z_L(P)$.



d) Construct and label the figure $G_{A,B}(\mathbf{Star})$ and the point $G_{A,B}(Q)$.

