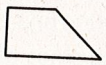
Mathematics for Elementary School Teachers p. 550

EXPLORATION 9.6 Developing Rotation Sense

1. For each of the figures on page 273, do the following:
   - **(i)** First, predict the image when the figure is rotated 180 degrees clockwise about the dot by lightly sketching your prediction in pencil on the sheet.
   - **(ii)** Then do the rotation according to your instructor's directions or by the following method. Take a blank sheet of paper and trace each figure and dot (or simply make a copy of the page). Place one sheet above the other. With your pencil or pen firmly on the dot, turn the bottom sheet 180 degrees. Now trace the image.
   - **(iii)** Compare the actual rotation and your prediction. If your prediction was very close, great! If it was not, take a moment to analyze your error. Why was your prediction wrong, how wrong was it, and what can you learn about the relationship between a figure and its rotated image? Write down your analysis!
2. After doing all 9 rotations, describe your method for determining a rotated image. That is, what generalizations can you make about rotating any figure 180 degrees clockwise? *Note*: You are welcome to make up new figures and do more exploring before answering this question.
3. Study the first six rotations (where the dot was not on the figure). What commonalities do you observe between the figure and its rotated image that are true in all six cases?
4. Repeat Steps 1–3 with a ~~90~~ 60-degree clockwise rotation.

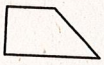
Figures for EXPLORATION 9.6: Developing Rotation Sense

a. 

b. 

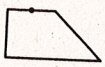
c. 

d. 

e. 

f. 

g. 

h. 

i.