Week 26 Geometry Assignment

Day 1: pp. 506-508 #1-15
Day 2: pp. 513-515 #1-24
Day 3: pp. 518-519 #1-18, omit #15
Day 4: pp. 524-525 #1-10, 16-19
Day 5: pp. 526-527 #1-19

Notes on Assignment:

Pages 506-507:

Work to show:
#1-12: Drawings
#13-15: Answer as directed.

#1-8: When it says name the type of transformations, it means to decide whether it is a translation or rotation. As in the last assignment, you do not need to *construct* these reflections. You can simply *draw* them.

#9-12: There are 2 parts to these problems. First trace the figure and translate it (using parallel lines of reflection). Then trace the figure again and rotate it (using intersecting lines of reflection).

#15: If you are rotating the triangle 70°, then your lines of reflection must be 35°. (Use a protractor to get the 35° angle between the lines.)

Pages 513-515:

Work to show:
#1-15: Show work needed.
#16-21: Drawings
#22-24: Answer as directed.

#1-2: Measure the sides in mm for the most accuracy. Remember that the scale factor is the ratio of $\frac{image}{preimage}$. You can make the ratio using the corresponding sides of the figure and its preimage, or you can make the ratio using the corresponding distances from your center O. (The *image* is the figure that *results* from the transformation, so it is the figure with the **N** next to the names of the points (example: A**N** is from the image, whereas A is from the preimage).

#3-6: If the scale factor is 5, then you know that you will either be multiplying or dividing by 5. You just have to figure out which one.

#9-12: After finding the dilation factor, tell whether it is a dilation, identity, or enlargement.

#14-15: Measure in mm.

#16-21: You are given the preimage and you are supposed to use a dilation with the given scale factor to draw the image.

Pages 518-519:

Work to show:

#1-8: Answer as directed.
#9-10: Drawings
#11-14: Answer as directed.
#16-18: Drawings

#1-5: Choose from these possible answers:

- reflection
- translation
- rotation
- identity transformation
- dilation

Then write whether or not it is an isometry.

#6-8: Use the same list as you used for #1-6.

#9-10: *Draw* these reflections. Do not *construct* them.

#14: We know by definition that one of these properties is distance. Knowing that, what other property would hold for isometries but not hold for similarities?

#16: Trace the figure and then draw the reflection in line l. Then, using a ruler, draw a 90° rotation using point B as your center of rotation. You do not have to draw the 45° intersecting lines and do the double reflection. I want you to "eye it."

#18: You need to find the 2 lines of reflection. There are many possible pairs of lines. The easiest is to find the perpendicular bisector of $\overline{CC'}$ and then reflect ΔABC across this line to obtain the intermediate stage of the rotation, $\Delta A'B'C'$. Then construct the perpendicular bisector of $\overline{B'B''}$ to obtain your second line. Where these 2 lines intersect is your center of rotation.

Pages 524-525:

Work to show:

#1-5: One drawing and answers.
#6-10: Drawings
#16-19: Drawings

#3: First, reflect point D through the line. Label the point D'. Draw the line segment connecting point A to D'. The point where the segment crosses the line is your point G.

#5: Do this like you did #3.

#6-7: Reflect point Y through the given side. Connect Y' to X to determine the path of the electron.

#8-10: For these problems, you need to work backwards. Reflect Y through the last side that the electron will hit. Label it Y'. Then reflect Y' through the first side that the electron hits. (You may have to extend the sides.) Label that point Y''. Draw the segment from X to Y'' and label the point where it intersects the rectangle as P. From point P, draw the segment from P to Y'. Label the point where the segment intersects the rectangle as point R. Finish by connecting point R to point Y.

#16-19: Do these like you did #8-10. Decide on the order of the sides that your ball will hit. (It is helpful to number the sides.) Then starting with H, reflect H through all of the sides in the reverse order that they will actually be hitting.

Pages 526-527:

Work to show:

#1-11: Answer as directed.
#12-17: Drawings
#18-19: Answer as directed.

#1-8: If you want to, photocopy the page in the book and cut out the figures. You must be able to fold the figure along a line and have the 2 sides line up exactly in order to have symmetry. Each such line is an axis of symmetry.

#9: Again, you can use the cut-outs if you want. Place the cut-out directly on top of the picture in the book. Put the point of your pencil at the center of the figure and rotate it. If your figure coincides with the figure before you get it turned one complete rotation, then it does have rotational symmetry.

#10: Count the number of times the figure coincides with the original figure, including the one that happens when you make a complete rotation. Divide 360° by that number to find the number of degrees for the rotation. For example, if you count 6 spots where the figure coincides with the original figure (start counting *after* you begin the rotation and also count the final resting place after a full rotation). Then take 360/6 to get 60°. That means the angles of rotation are 60°, 120°, 180°, 240°, and 300°. You do <u>not</u> include the 360° rotation in your list, but you <u>do</u> need to count it to get the right number to divide into 360°.

#11: A figure has point symmetry if it has a rotational symmetry of 180°.

#15: The figure that you have may look different that that in the solutions.