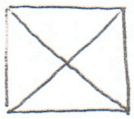
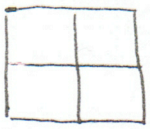
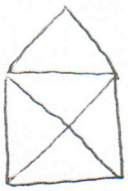
Section 1.1 Problem Solving with *Draw a Picture*, *Guess and Test*, *Draw a Variable*

Using Polya's four steps for problem solving and one of the strategies listed above, solve one of the problems below. You will present your solution to the class.

1. Greg has 1002 meters of fencing. He will use all the fencing to enclose a rectangular region that is four times as long as it is wide. One of the longer sides is bordered by a river, so that side will not be fenced. What will be the dimensions of the region?

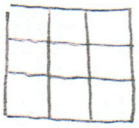
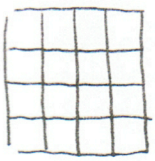
2. Table at a wedding reception have six sides or eights sides and will be trimmed around the edges with lace. Each side on a given table is the same length, but a side on a six-sided table is 8 inches longer than a side on an eight-sided table. One package of lace trims the eight-sided table with no leftovers. When the same package of lace trims the six-sided table, there are 2 inches of lace left over. What is the length of lace in one package?

3. Can you trace the following figures without lifting your pencil and without retracing any lines? If so, describe how. If not, why not?

4. A child has 10 blocks with heights of 1 cm, 2 cm, 3 cm, 4 cm, 5 cm, 6 cm, 7 cm, 8 cm, 9 cm, and 10 cm. The child wants to use only these 10 blocks to build two separate towers that are exactly the same height. Can this be done? If so, how? If not, why not?

5. Determine if exactly six squares of the 3 by 3 grid can be shaded so that no three shaded squares line up horizontally, vertically, or diagonally. Determine if exactly 12 squares of a 4 by 4 grid can be shaded so that no four shaded squares line up horizontally, vertically or diagonally.

6. A delivery driver must deliver packages to homes on each street in the following map. Lines represent streets and letters represent intersections. List the intersections in the order the delivery driver will pass through them so that she travels each street exactly once. Can she begin and end her route at the same intersection? Explain.