

Teacher's Guides

You will be writing teacher's guides for each of the seven geometry books in the *Connected Mathematics* series. Everything should be typed, all diagrams should be carefully drawn, and these teacher's guides should be placed sequentially in a three-ring binder. It is ok to work together on this, *but you must list the names of your collaborators* for each Investigation. For each Investigation in each book, include the following:

1. Answers for all of the problems. In most cases your answers will be brief. Sometimes you will need to include drawings. Ask me if you are uncertain about whether your answers are complete enough.

Example:

Investigation 1, Problem 1.1.

- A. If all of the tiles are to be the same regular polygon, and the tiles meet edge-to-edge, the only possibilities are equilateral triangles, squares, and regular hexagons. The resulting tilings are called the *regular tilings*. See Homework #1 for drawings.
- B. If two or more different regular polygons are to be used in edge-to-edge tilings, then the sum of the angles of the tiles meeting at each vertex must be 360 degrees. There are xxx possible clusters of regular polygons meeting this criteria. If we want the same cluster meeting at every vertex of the tiling (which is not required by this problem), then there are xxx possible tilings, called the *semiregular tilings*. See Homework #1 for details and drawings.

ACE, 5. 1 row of 30, 2 rows of 15, 3 rows of 10, and 5 rows of 6, and the other four resulting from interchanging rows and columns. These are the only ways to factor 30 into two whole numbers.

2. A short list of mathematical and problem-solving skills addressed by the Investigation.

Example: Investigation 1.

- (a) To discover, through exploration, which regular polygons can be used to tile a plane.
- (b) To discover combinations of regular polygons that can be used to tile a plane.
- (c) To discover that some irregular polygons can be used to tile a plane.

3. A list of the Geometry and Measurement NCTM standards addressed by the Investigation. You can access the *Standards* from a link from the course webpage, and can often copy and paste directly from the *Standards*.

Example: Investigation 1.

- (a) Precisely describe, classify, and understand relationships among types of two-dimensional objects using their defining properties.
- (b) Understand relationships among the angles of similar objects.
- (c) Draw geometric objects with specified properties, such as side lengths or angle measures.
- (d) Understand, select, and use units of appropriate size and type to measure angles.