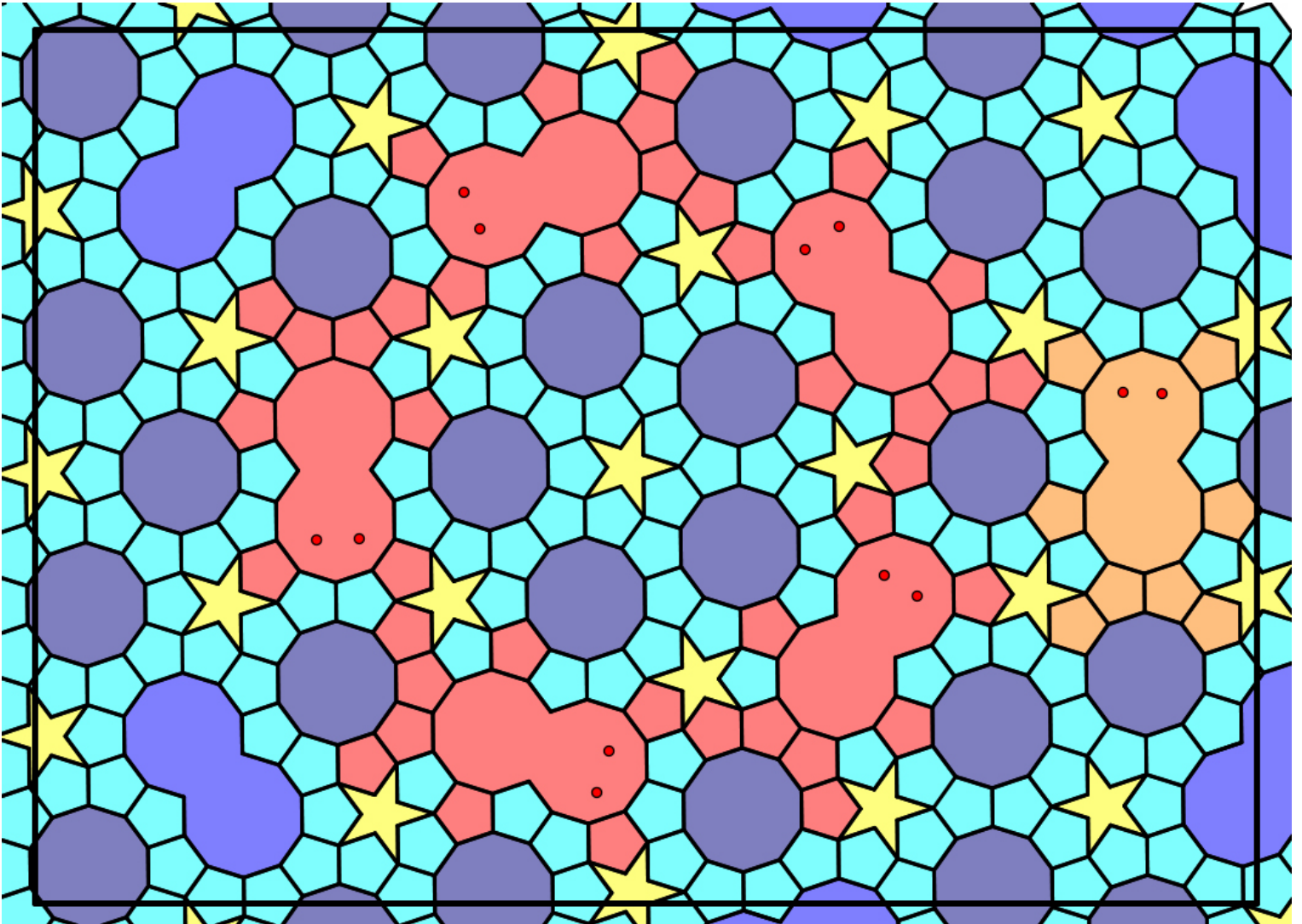


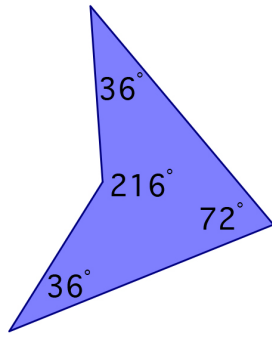
Solution for “Find the Bears”:

The image below displays six bears and another six bears can be found in those same locations by rotating the current bears 180 degrees. Thus the total number of bears is 12. If, however, you do not count the orange bear at the right as being completely within the rectangular boundary then there are only 10.

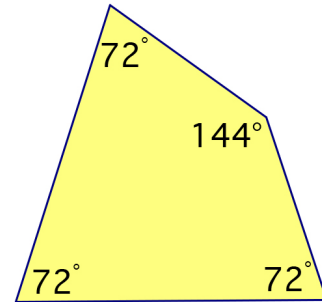


Solution for "Find the Fish":

An interesting property of the kite at the right (in our tiling some are blue and some are yellow) and dart at the left (in our tiling all of the darts are blue) is the measures of their interior angles. It turns out that 144 degrees is the measure of an interior angle of a regular decagon while 36



degrees is the measure of the exterior angle of a regular decagon. The central angle and exterior angle of a regular pentagon measures 72 degrees. These angle properties lead to symmetries in our tiling similar to those found in a regular pentagon or regular decagon. For example there are many places in our tiling where five darts or five kites come together because five angles of 72 degrees is 360 degrees.



In our tiling, there are five fish similar to the green one in the image below all around that center shape of five kites forming a decagon. You will notice that all polygons immediately adjacent to this decagon are darts. There are no other complete fish on the tiling within the rectangle boundary because there are no other decagons that are completely surrounded by darts. If, however, we extended the boundary there are several other locations similar to the one in the center where the decagon is surrounded by darts. You can see the possible fish in red in each of these locations. Since none of these red fish are within the rectangular boundary the total number of fish in our tiling is five!

