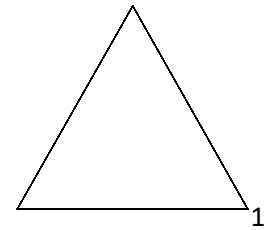
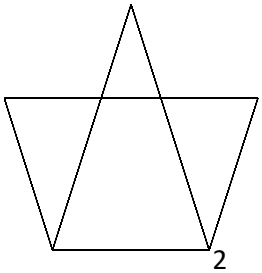
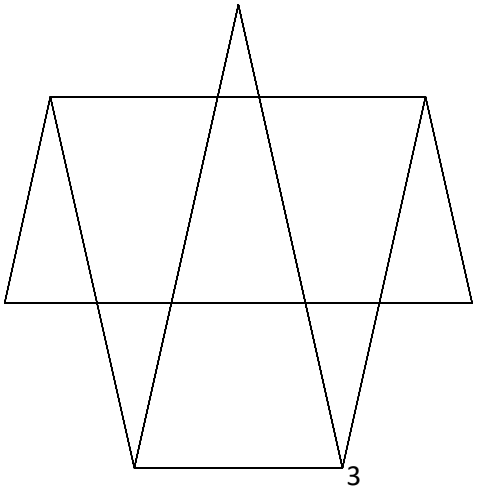
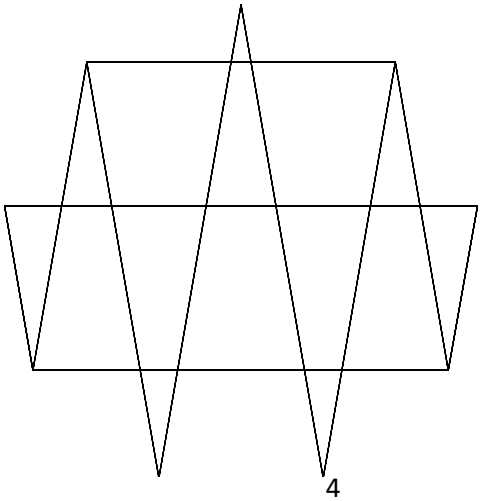
From: Erfle, Playing with Polygons, File 6 Counting Exercise Name_____

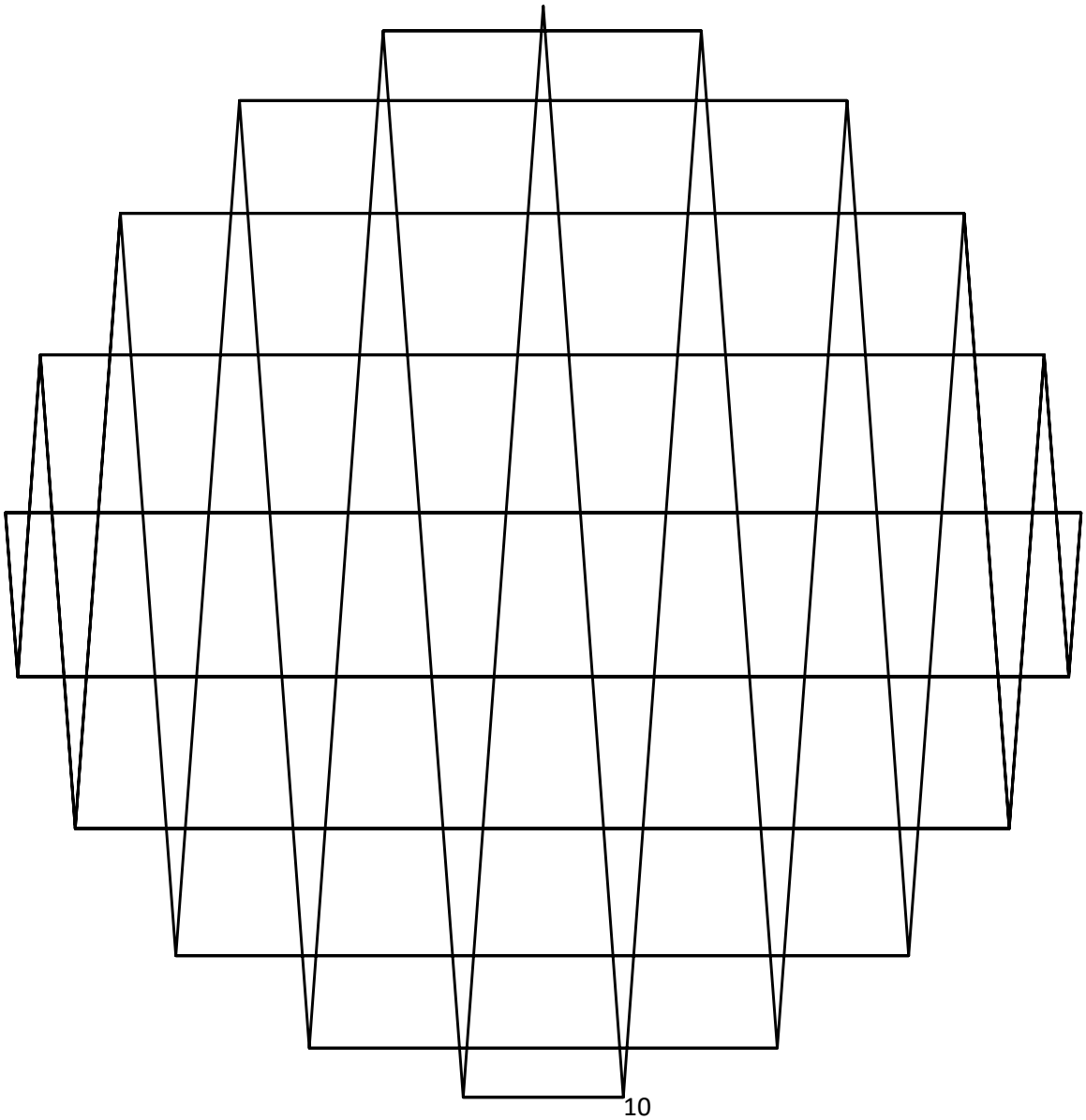
Counting Exercise, Page 1. Each image shows the vertex just before the bottom of the image labeled just like clock a with the first vertex after the top being 1. Count triangles of all sizes by counting how many are at each of the sharp peaks. The first couple of images are easy but look at the other side before trying to count the one labeled 10 below.


1


2


3


4

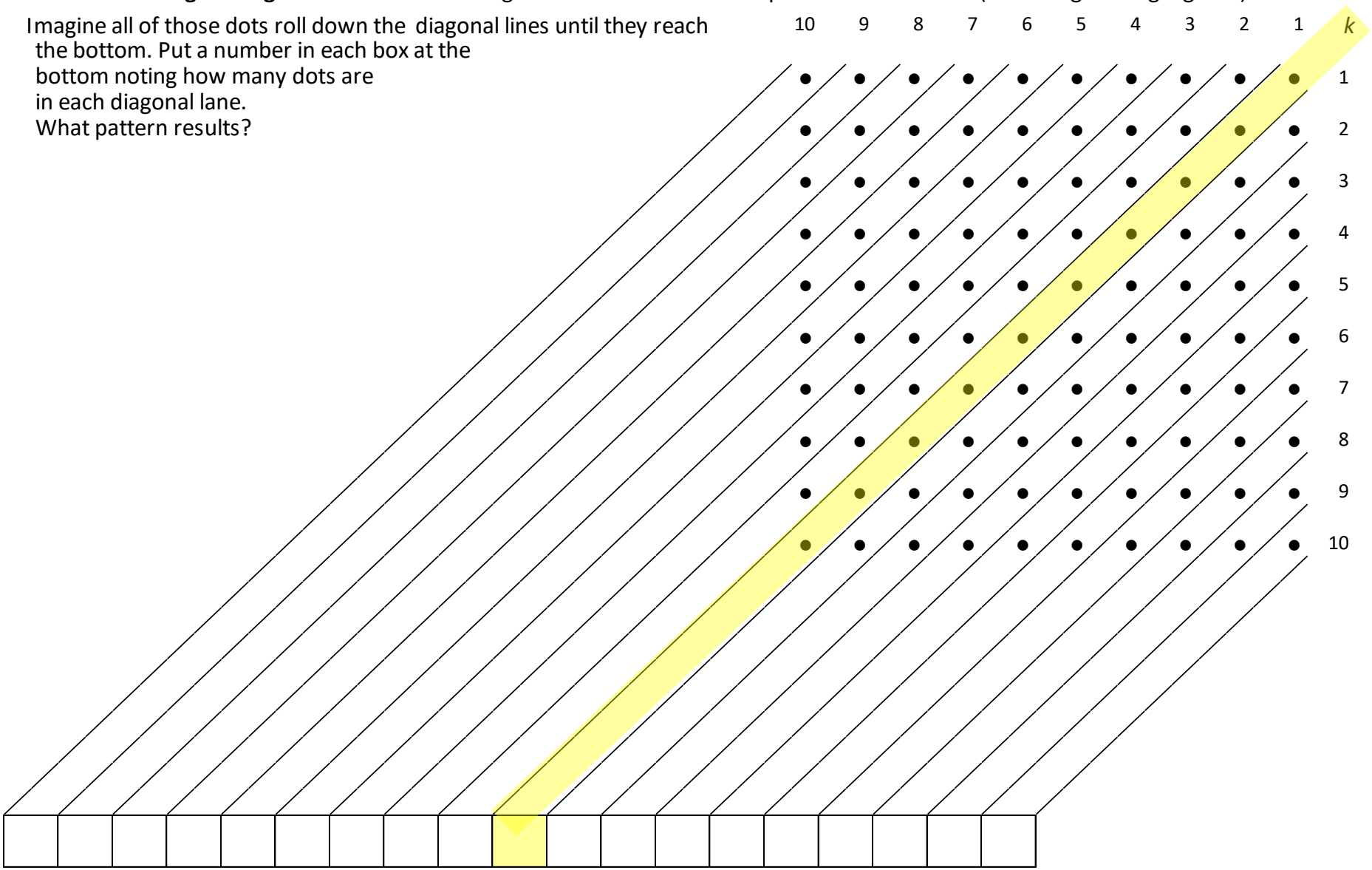

10

Counting Exercise, Page 2. This exercise gets you to count how many dots are in a square-of-dots in a different fashion.

This is an image of a 10 x 10 square of dots. How many dots are there total? _____ Did you have to count all the dots to know that answer? _____

Counting on diagonals: Consider the diagonal lines that have been placed between dots (main diagonal highlighted).

Imagine all of those dots roll down the diagonal lines until they reach the bottom. Put a number in each box at the bottom noting how many dots are in each diagonal lane. What pattern results?



Once you understand this pattern, **see if you can see the same pattern in the "10" image on page 1 by looking at it in a zig-zag fashion**. Once you see this you know that there are 100 triangles in the image, just by counting the number of triangles in the largest-sharpest-triangle (with apex at the top) and squaring.