July, 2016 – Grades 3 & 4

Individual Questions (Part 1)
Total pages: 5, Total points: 40
Time limit: 30 minutes

Name (Print): _____

Question #1 (6 points)
These triangles may be divided into congruent parts in several ways. The simplest division is to divide the figure into two congruent triangles (as in the example below). Divide the remaining triangles into **four, eight,** and **nine** congruent parts. In each new pattern created by division into parts, all the parts must be congruent to one another.
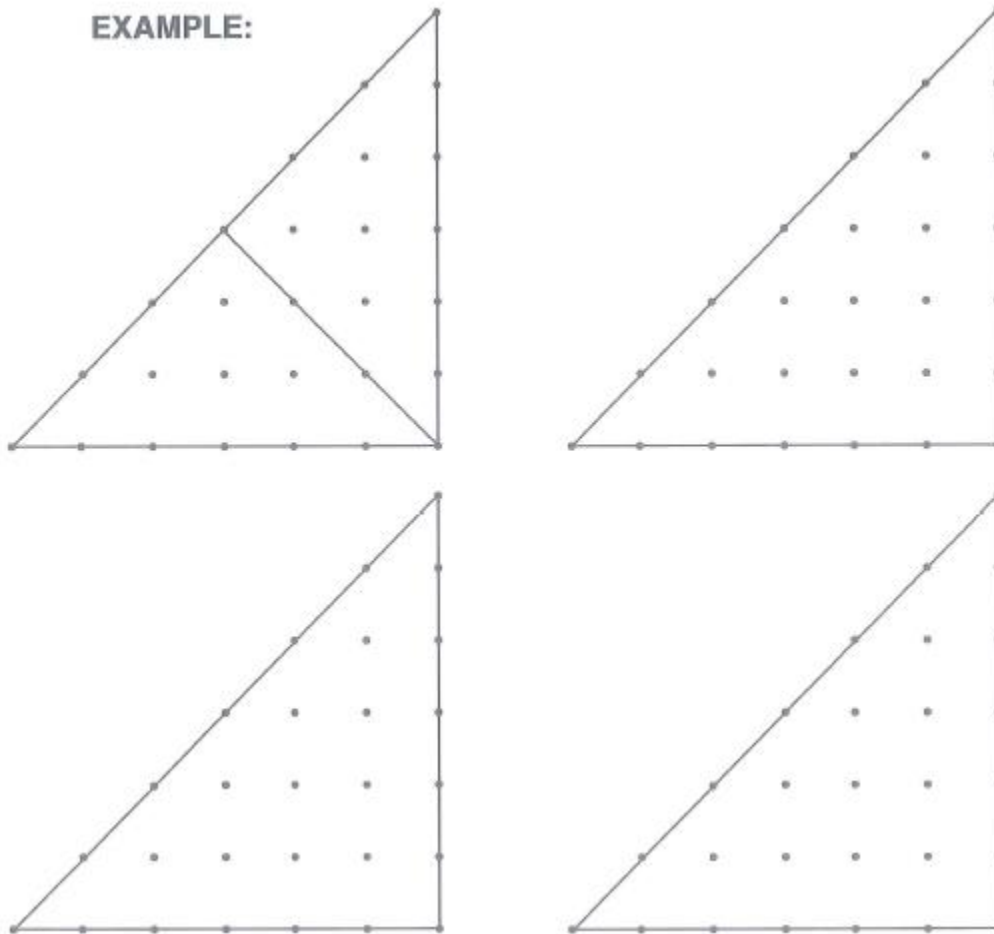
Question #2 (3 points)
Similar figures have the same shape but different sizes. For example, the following two shapes are **not** congruent, but **similar** because, although they have different sizes, they have exactly the same shape.
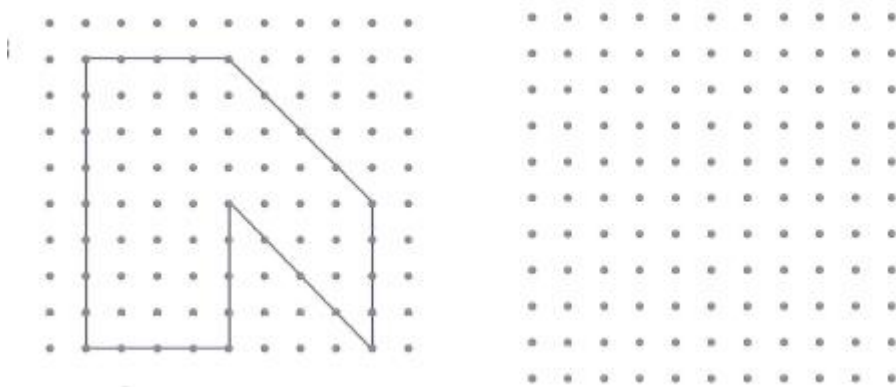
Use the dot grid on the right to draw a figure with sides one and one-half times as long as the figure on the left.
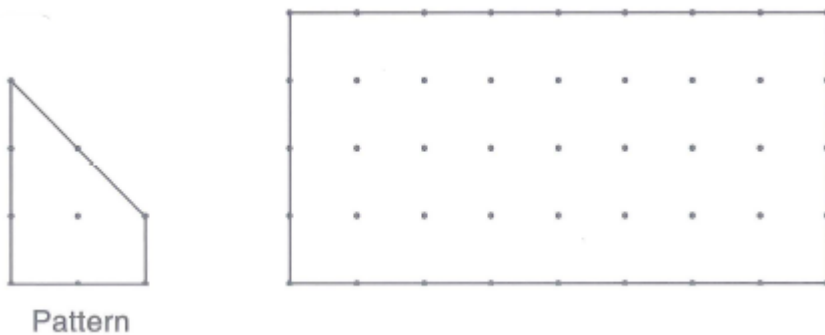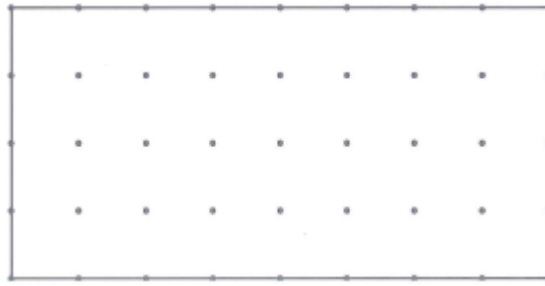
Question #3 (3 points)
Use the dot grid on the right to draw a figure with sides three-fourths as long as the figure on the left.
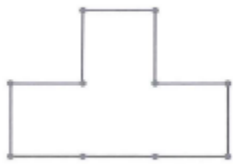
Question #4 (6 points)
Draw the pattern on the dot grid as many times as needed to cover the whole grid. There should be **no** empty space left in the grid and **no** overlapping. This process is called **tessellation**. Draw three **different** tessellations.
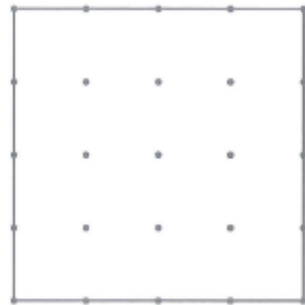
Pattern

Question #5 (5 points)

Draw the pattern on the dot grid as many times as needed to cover the whole grid. There should be **no** empty space left in the grid and **no** overlapping. This process is called **tessellation**.
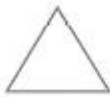
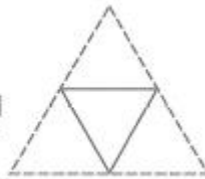Pattern

Question #6 (4 points)

Some shapes can be repeated (tessellated) to form a larger pattern of the **same** shape. Some can not. Draw the larger pattern that can be made by tessellating the following rhombus.

EXAMPLE:

This small equilateral triangle

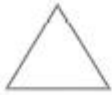can be tessellated to form this similar equilateral triangle.
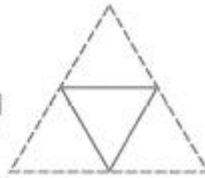
Question #7 (4 points)

Some shapes can be repeated (tessellated) to form a larger pattern of the **same** shape. Some can not. Draw the larger pattern that can be made by tessellating the following triangle.

EXAMPLE:

This small equilateral triangle

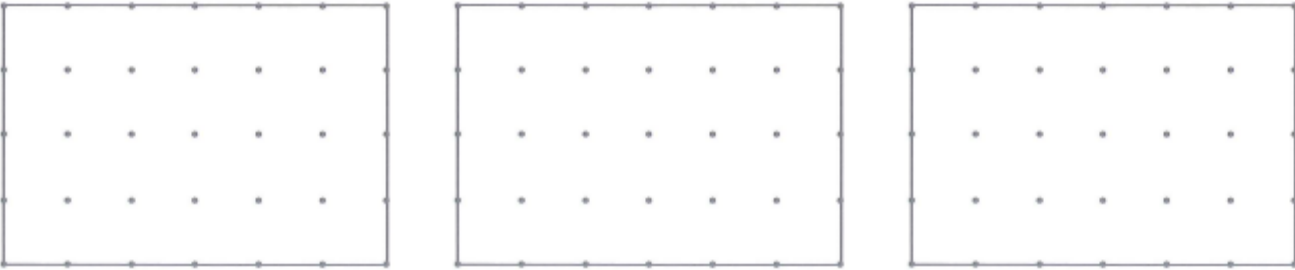can be tessellated to form this similar equilateral triangle.

Question #8 (9 points)

A polyomino is formed by joining one or more equal squares edge to edge.

NUMBER	NAME	EXAMPLES
1	Monomino	
2	Domino	
3	Trominoes	
4	Tetrominoes	

Cover this surface with three **different** pairs of tetrominoes. Do this in three **different** ways.

Cover this surface with two pairs of trominoes. Do this in three **different** ways.