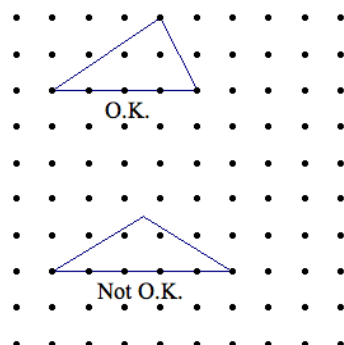


Triangle Areas on a 10 x 10 dot grid

This problem involves making triangles on a 10 x 10 dot grid. The triangles you make must have all three vertices on dots and cannot extend beyond the grid. See examples:



1. On a 10 x 10 dot grid, make triangles with the following areas:
 - 1 square unit
 - 1.5 square units
 - 3 square units
 - 6 square units
 - 15 square units
2. Make as many different triangles with area 6 square units as you can. Here, two triangles are “different” if they are not congruent.
3. Which of your triangles with an area of 6 square units has the largest perimeter? Explain.
4. Draw a triangle with the largest area that can be made on a 10 x 10 dot grid.
 - Find its area, and explain why you think it has the largest area.
 - Are there other triangles on the 10 x 10 dot grid with the same area? Explain
5. If you weren't restricted to the 10 x 10 grid, what is the largest perimeter possible? Explain.

Extension: Many different triangles can be made with two sides of length 5 and 8. On plane paper sketch a few that are possible.

- What is the range of possible lengths for the third side?
- Which of the many possible triangles has the largest area? Explain?