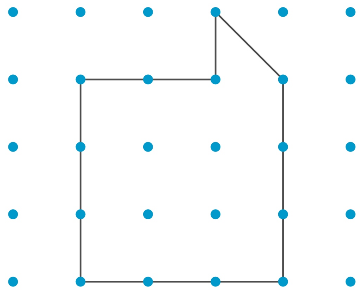
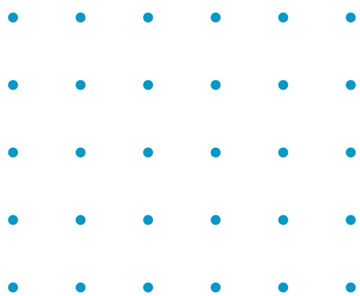
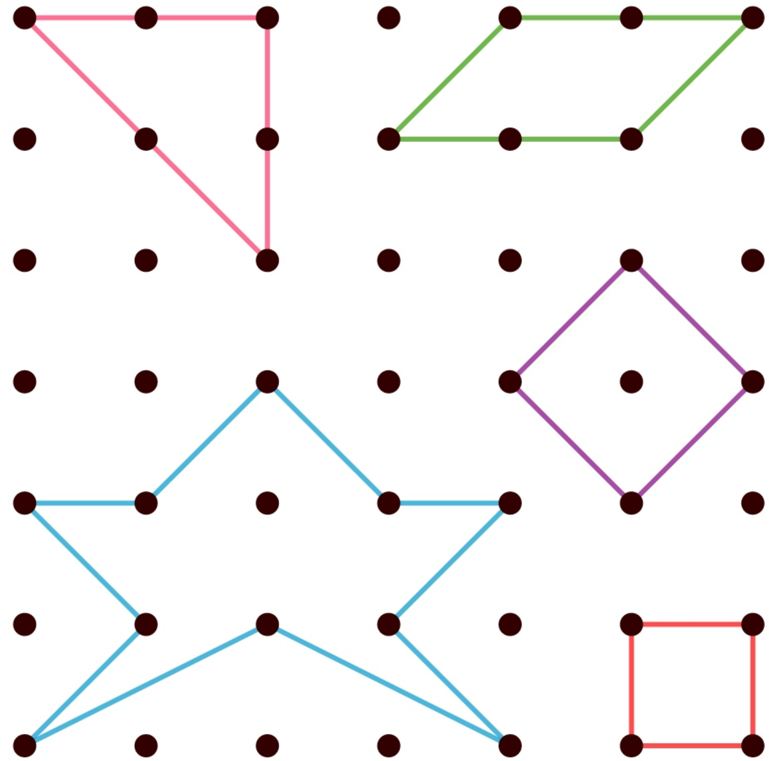


$\frac{B}{2}$ ☐ + **I** ☐ - 1 = **Area** ☐ square units

Now draw your own shape, and calculate the area!

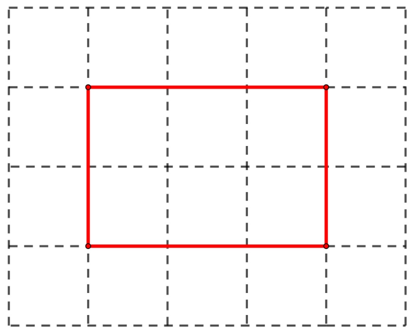


$\frac{B}{2}$ ☐ + **I** ☐ - 1 = **Area** ☐ square units



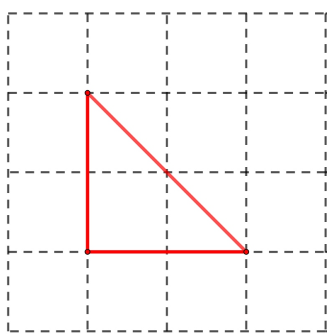
Geoboards & Pick's Theorem

Can you calculate the area of this rectangle by counting the squares, or otherwise?

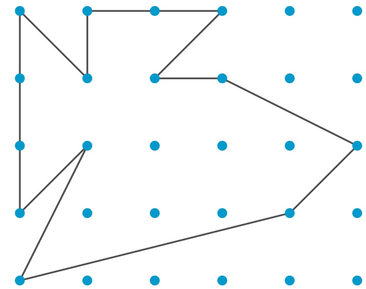


Area = ☐ square units

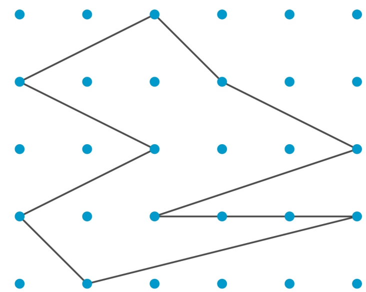
What about this triangle?



Area = ☐ square units

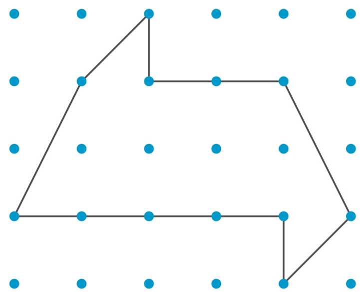


$\frac{\mathbf{B}}{\mathbf{2}}$ ☐ + **I** ☐ - 1 = **Area** ☐ square units



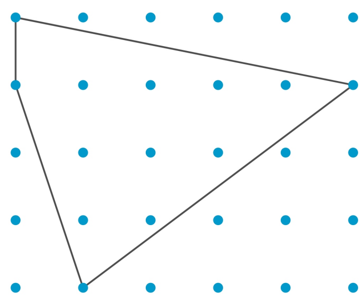
$\frac{\mathbf{B}}{\mathbf{2}}$ ☐ + **I** ☐ - 1 = **Area** ☐ square units

Now try some yourself!



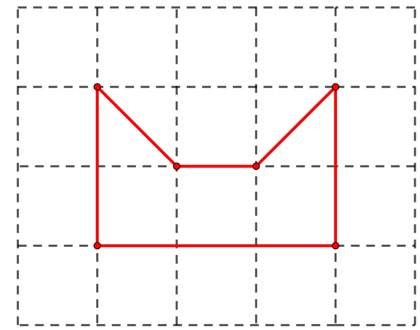
$\frac{\mathbf{B}}{\mathbf{2}}$ **I** **Area**

$\square + \square - 1 = \square$ square units



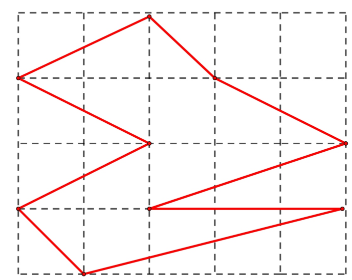
$\frac{\mathbf{B}}{\mathbf{2}}$ **I** **Area**

$\square + \square - 1 = \square$ square units



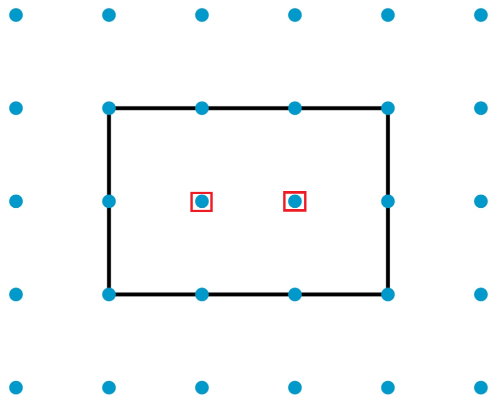
Area $= \square$ square units

But it's much harder to find the area of unusual shapes, like this one:

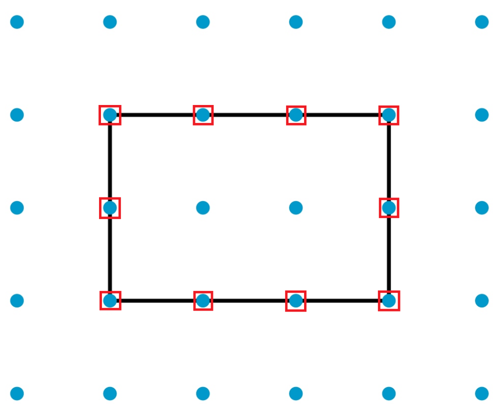


I wonder if there is an easier way to find the area of more complex shapes?

When you make a shape on a geoboard, the points inside the shape are called **interior points**.



The points that the lines pass through are called **boundary points**.

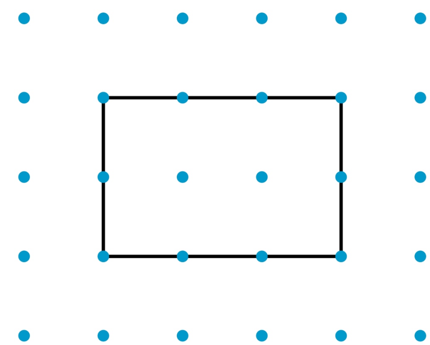


A mathematician called Georg Alexander Pick discovered something special about shapes on geoboards...

$$\mathbf{A} = \frac{\mathbf{B}}{\mathbf{2}} + \mathbf{I} - \mathbf{1}$$

Area = half the number of boundary points + the number of interior points - 1

Let's try a shape together:



B = ☐ **I** = ☐

$\frac{\mathbf{B}}{\mathbf{2}}$ ☐ + **I** ☐ - 1 = **Area** ☐ square units