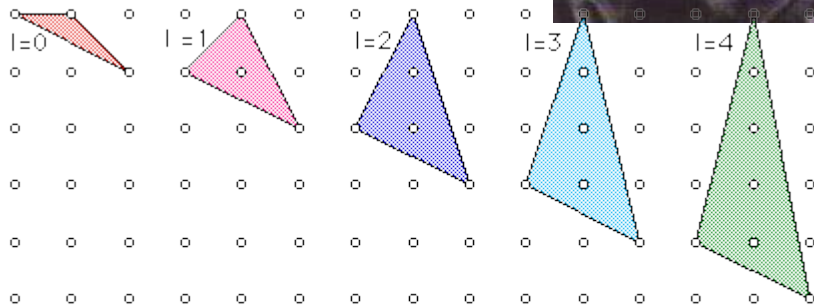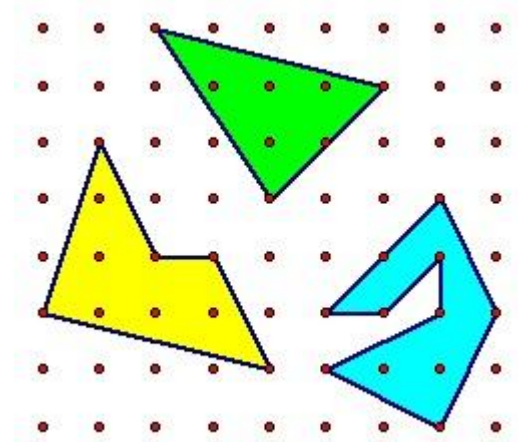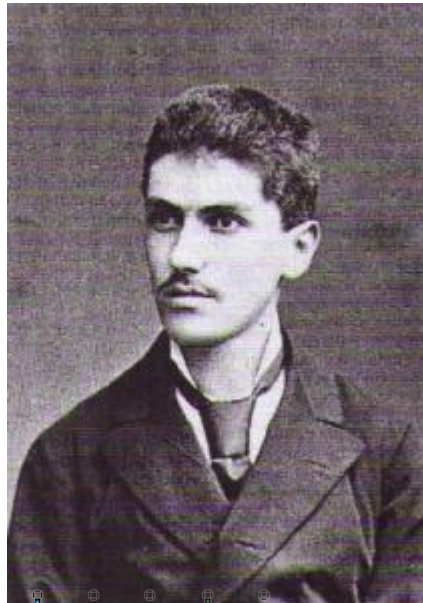# GEORG ALEXANDER PICK

(10 August 1859 – 26 July 1942)

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

Area(3,0) = 0.5 square cm
Area(3,1) = 1.5 square cm
Area(3,2) = 2.5 square cm
Area(3,3) = 3.5 square cm
Area(3,4) = 4.5 square cm

Pick was a bachelor ... uncommonly correct in clothes and attitude.

- Arguably one of the greatest minds that the world lost during the Holocaust, Pick was an Austrian mathematician. In his last days, Pick had fled to Prague. However, after Germany invaded Czechoslovakia (nowadays Czech Republic) , Pick was sent to Theresienstadt concentration camp, where he spent his final moments, dying just two weeks later.

- He is best known for Pick's Formula, which he invented to measure the area of lattice polygons. His research spread to mathematical physics as well and has the honor of working with the great Albert Einstein. While at the German University of Prague, Pick worked with Einstein and familiarized him with the works of Italian mathematicians, in the field of absolute differential calculus. This was a great stepping-stone in Einstein's formulation of General Relativity. Pick was known to be a very smart and dedicated person, who had a gift of getting in the depth of ideas. He is also credited for formulation of Schwarz-Pick lemma and Schwarz-Ahlfors-Pick theorem.

- At the end of September 1938 the Prague government was asked to give Germany all districts of Bohemia and Moravia with populations that were 50 percent or more German. The leaders of Czechoslovakia resigned rather than agree, but those who took over gave the regions to Germany. Hitler's armies invaded on 14 March 1939 and Hitler installed his representative in Prague to run the country. Pick had been elected as a member of the Czech Academy of Sciences and Arts, but after the Nazis took over Prague, Pick was excluded from the Academy. The Nazis set up a camp at Theresienstadt in Nordboehmen on 24 November 1941 to house elderly, privileged, and famous Jews. Of around 144,000 Jews sent to Theresienstadt about a quarter died there and around 60% were sent on to Auschwitz or other death camps. Pick was sent to Theresienstadt on 13 July 1942 and he died there two weeks later aged 82.

Pick's formula

$$\text{Area}(\text{p}) = \text{I} + \frac{b}{2} - 1$$

Pick's formula and Geogebra

A simple activity with Geogebra

- Lattice points in a plane are points with integer coordinates. A simple lattice polygon means all the vertices of the polygon are lattice points and the sides do not intersect each others.

- Draw any simple lattice polygons you like and count the number of interior lattice points (i) and the number of boundary lattice points (b), as shown in the spreadsheet in the lower part of the previous applet. The applet also gives half of b and measures the area of the polygon.

- Report your own set of numbers and record them on your paper. Then observe the many i, b/2 and A's to see if there is any relationship(Pick's Theorem).