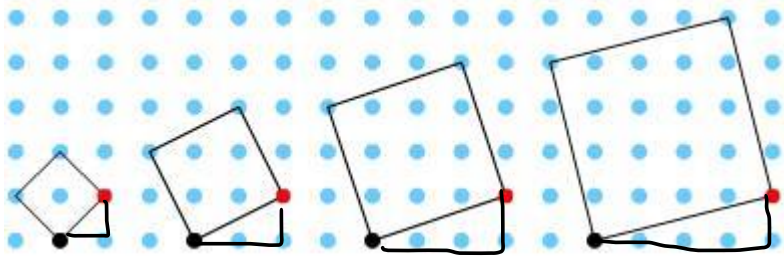


First let's use the Pythagorean theorem to find the side length of the tilted square. Let's say that the original square has side length x .



Notice the triangles, the hypotenuse of these triangles is the side length of the tilted square. $\sqrt{x^2 + 1^2}$

Square it, and you get $x^2 + 1^2$. And this doesn't matter, we can set the tilt to anything. If t is the tilt, then $\sqrt{x^2 + t^2}$, $x^2 + t^2$, which is the area, neat.