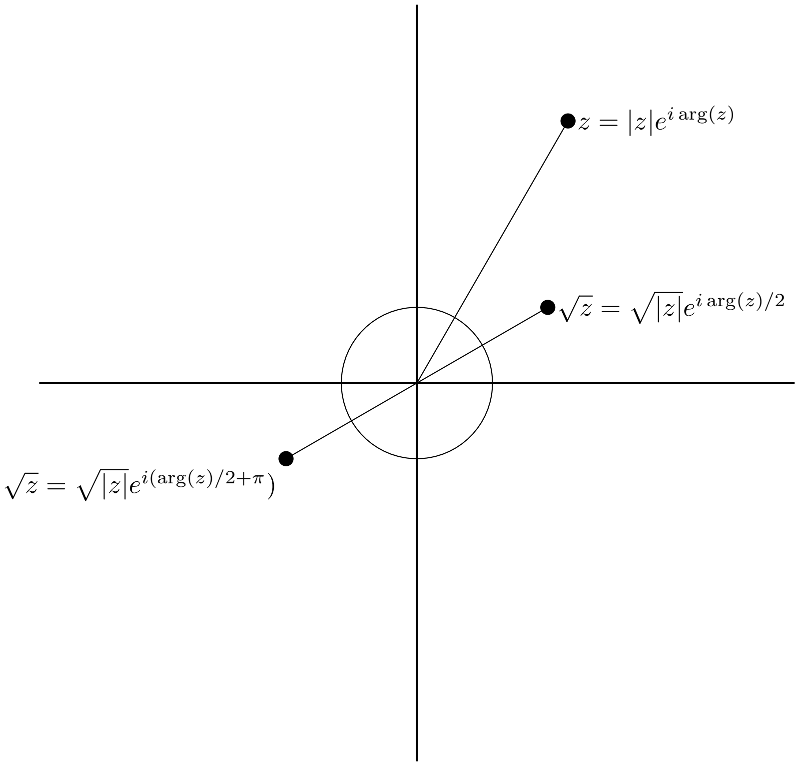
Verify that one root of a complex number follows this formula:

$$\sqrt{x+iy} = \sqrt{\frac{\sqrt{x^2+y^2}+x}{2}} + i\sqrt{\frac{\sqrt{x^2+y^2}-x}{2}} \text{ for all } y \geq 0$$



$$\begin{aligned}
\sqrt{z} = \sqrt{|z|}e^{i\,\arg(z)/2} &= \sqrt{x^2+y^2}\cdot\left[\cos\left(\frac{\arg(z)}{2}\right) + i\sin\left(\frac{\arg(z)}{2}\right)\right] \\
\cos\left(\frac{\arg(z)}{2}\right) &= \cos\left(\frac{1}{2}\arctan\left(\frac{x}{y}\right)\right) \\
&= \cos\left(\frac{1}{2}\arccos\left(\frac{x}{\sqrt{x^2+y^2}}\right)\right) \\
\sin\left(\frac{\arg(z)}{2}\right) &= \sin\left(\frac{1}{2}\arcsin\left(\frac{y}{\sqrt{x^2+y^2}}\right)\right)
\end{aligned}$$