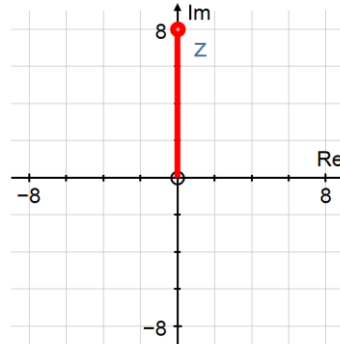Find the roots of the equation $z^3 = 8i$, $z \in \mathbb{C}$

Express your answers in Cartesian Form

$z^3 = 8i$

$$z^3 = 8cis\left(\frac{\pi}{2} + 2k\pi\right)$$

$k = 0,1,2$

Use de Moivre's Theorem...

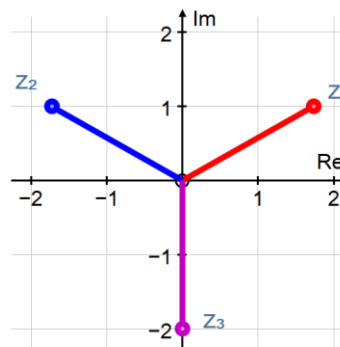$$z = 8^{\frac{1}{3}}cis\left(\frac{\pi}{6} + \frac{2k\pi}{3}\right)$$

$k = 0,1,2$

$$z = 2cis\left(\frac{\pi}{6} + \frac{2k\pi}{3}\right)$$

$k = 0,1,2$

$$z = 2cis\left(\frac{\pi}{6}\right), \ 2cis\left(\frac{\pi}{6} + \frac{2\pi}{3}\right), \ 2cis\left(\frac{\pi}{6} + \frac{4\pi}{3}\right)$$

$$z = 2cis\frac{\pi}{6}, \ 2cis\frac{5\pi}{6}, \ 2cis\left(-\frac{\pi}{2}\right)$$

Use the symmetry of the roots to convert into Cartesian Form

$$z = \sqrt{3} + i \ , -\sqrt{3} + i \ , -2i$$