Trigonometric form of roots of the equation: $x^{263}-4\sqrt{3}\imath-4=0$

$$x^{263}-4\sqrt{3}\imath-4=0$$
$$x^{263}=4+4\sqrt{3}\imath=z$$
$$x=\sqrt[263]{z}$$
$$|z|=\sqrt{Re(z)^2+Im(z)^2}$$
$$\cos\varphi=\frac{Re(z)}{|z|},\sin\varphi=\frac{Im(z)}{|z|}$$
$$|z|\left(\cos\varphi+\imath\sin\varphi\right)$$
$$\sqrt[n]{z}=|z|^{\frac{1}{n}}\left(\cos\frac{\varphi+2k\pi}{n}+\imath\sin\frac{\varphi+2k\pi}{n}\right)$$
$$k=0,1,\ldots,n-1$$
$$|z|=\sqrt{(4)^2+\left(4\sqrt{3}\right)^2}=\sqrt{16+16\times 3}=\sqrt{4\times 16}=2\times 4=8$$
$$z=8\left(\frac{\cancel{4}}{\cancel{8}}+\frac{\cancel{4}\sqrt{3}}{\cancel{8}}\right)=8\left(\frac{1}{2}+\imath\frac{\sqrt{3}}{2}\right)=8\left(\cos\frac{\pi}{3}+\imath\sin\frac{\pi}{3}\right)$$
$$x=\sqrt[263]{z}=2^{\frac{3}{263}}\left(\cos\frac{\frac{\pi}{3}+2k\pi}{263}+\imath\sin\frac{\frac{\pi}{3}+2k\pi}{263}\right)$$
$$k=0,1,\ldots,262$$