$solve\left(x^4 = 1 + I\right)$

$$(1 + I)^{1/4}, I\,(1 + I)^{1/4}, -(1 + I)^{1/4}, -I\,(1 + I)^{1/4} \tag{1}$$

$z := \sqrt[8]{2}\left(\cos\left(\dfrac{Pi}{16}\right) + I\cdot\sin\left(\dfrac{Pi}{16}\right)\right)$

$$z := 2^{1/8}\left(\cos\left(\dfrac{\pi}{16}\right) + I\sin\left(\dfrac{\pi}{16}\right)\right) \tag{2}$$

z^4

$$\sqrt{2}\left(\cos\left(\dfrac{\pi}{16}\right) + I\sin\left(\dfrac{\pi}{16}\right)\right)^4 \tag{3}$$

$simplify(\%)$

$$1 + I \tag{4}$$

$z := \sqrt[8]{2}\left(\cos\left(\dfrac{9\,Pi}{16}\right) + I\cdot\sin\left(\dfrac{9\,Pi}{16}\right)\right)$

$$z := 2^{1/8}\left(-\cos\left(\dfrac{7\,\pi}{16}\right) + I\sin\left(\dfrac{7\,\pi}{16}\right)\right) \tag{5}$$

z^4

$$\sqrt{2}\left(-\cos\left(\dfrac{7\,\pi}{16}\right) + I\sin\left(\dfrac{7\,\pi}{16}\right)\right)^4 \tag{6}$$

$simplify(\%)$

$$1 + I \tag{7}$$

$6\left(\cos\left(\dfrac{29\,Pi}{18}\right) + I\cdot\sin\left(\dfrac{29\cdot Pi}{18}\right)\right)$

$$6\cos\left(\dfrac{7\,\pi}{18}\right) - 6\,I\sin\left(\dfrac{7\,\pi}{18}\right) \tag{8}$$

$\%^3$

$$\left(6\cos\left(\dfrac{7\,\pi}{18}\right) - 6\,I\sin\left(\dfrac{7\,\pi}{18}\right)\right)^3 \tag{9}$$

$simplify(\%)$

$$108\,I - 108\,\sqrt{3} \tag{10}$$

$216\left(\cos\left(\dfrac{5\,Pi}{6}\right) + I\cdot\sin\left(\dfrac{5\,Pi}{6}\right)\right)$

$$108\,I - 108\,\sqrt{3} \tag{11}$$