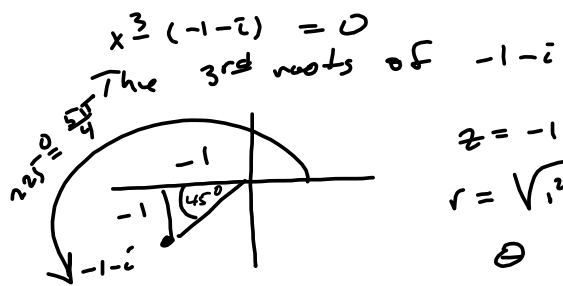


All solns to

$$x^3(-1-i) = 0$$



$$z = -1 - i = r(\cos \theta + i \sin \theta)$$

$$r = \sqrt{1^2 + 1^2} = \sqrt{2}$$

θ

$$z = \sqrt{2} \left(\cos \frac{5\pi}{4} + i \sin \frac{5\pi}{4} \right)$$

$$\sqrt[3]{z} = \sqrt[3]{\sqrt{2}} \left(\cos \left(\frac{5\pi}{12} \right) + i \sin \left(\frac{5\pi}{12} \right) \right)$$

$$k=0: \sqrt[6]{2} \left(\cos \frac{5\pi}{12} + i \sin \frac{5\pi}{12} \right)$$

$$k=1: \sqrt[6]{2} \left(\cos \frac{13\pi}{12} + i \sin \frac{13\pi}{12} \right)$$

$$k=2: \sqrt[6]{2} \left(\cos \frac{21\pi}{12} + i \sin \frac{21\pi}{12} \right)$$

$$= \sqrt[6]{2} \left(\cos \left(\frac{7\pi}{4} \right) + i \sin \left(\frac{7\pi}{4} \right) \right)$$

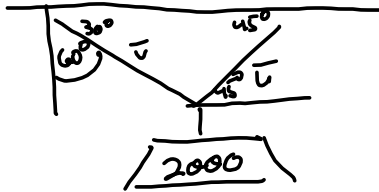
$$\frac{2\pi}{3} = \text{inc.}$$

$$k=1: \frac{5\pi}{12} + \frac{2\pi}{3} = \frac{5\pi}{12} + \frac{8\pi}{12} = \frac{13\pi}{12}$$

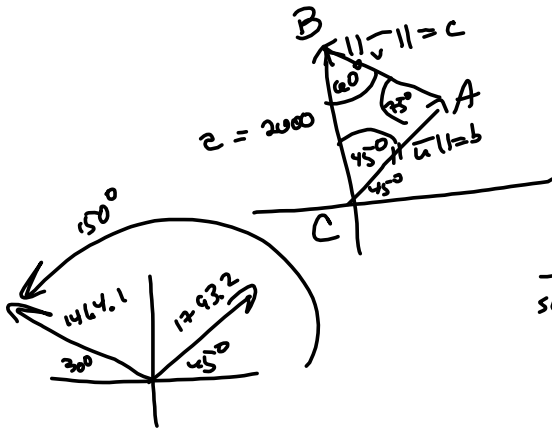
$$k=2: 13 + \theta = 21$$

$$\checkmark k=3: 21 + \theta = 29$$

$$\frac{29\pi}{12} = \frac{24\pi}{12} + \frac{5\pi}{12}$$



Want $\vec{u} + \vec{v} = \langle 0, 2000 \rangle$



$180 - 60 - 45 = 75$
 Want $\|\vec{v}\| = c$
 $\|\vec{u}\| = b$

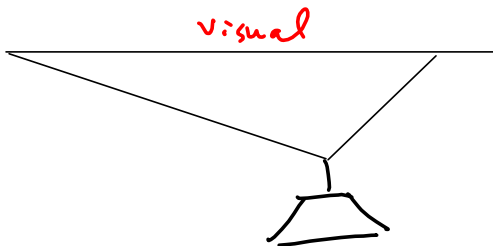
$$\frac{b}{\sin B} = \frac{c}{\sin A} \Rightarrow b = \frac{c \sin B}{\sin A}$$

$$= \frac{2000 \sin(60)}{\sin(75)} \approx 1793.150944 \approx \|\vec{u}\|$$

Check: $c = \frac{2000 \sin(45)}{\sin(75)} \approx 1464.101615 \approx \|\vec{v}\|$

$$1793.2 \langle \cos 45^\circ, \sin 45^\circ \rangle + 1464 \langle \cos 30^\circ, \sin 30^\circ \rangle \approx \langle 0.03608634292, 2000.03388 \rangle$$

pretty close



FORCES

