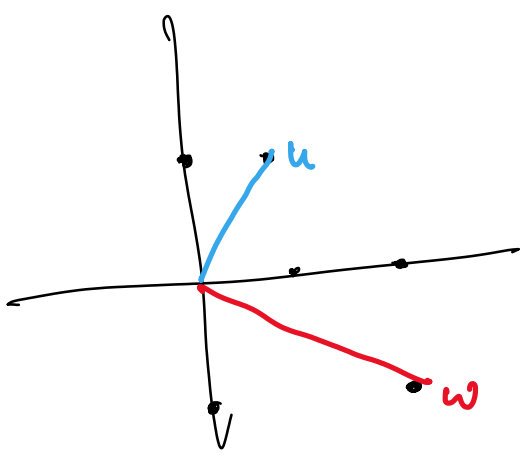
6.24

måndag 19 december 2022 12:42

$$z = \frac{1+i\sqrt{3}}{(2-2i)^3} \qquad u = 1+i\sqrt{3} \qquad (w)^3 = (2-2i)^3$$



$$|u| = 2 \qquad |w| = \sqrt{8} = 2\sqrt{2}$$

$$\theta = \pi/3 \qquad \theta = -\pi/4$$

$$u = 2e^{i\pi/3} \qquad w = 2\sqrt{2}\,e^{-i\pi/4}$$

$$w^3 = 2^{9/2}\,e^{-i3\pi/4}$$

$$\frac{2e^{i\pi/3}}{2^{9/2}e^{-i3\pi/4}} = 2e^{i\pi/3}\cdot 2^{9/2}e^{i3\pi/4} =$$

$$= 2^{11/2}\,e^{i(\pi/3+3\pi/4)} = 2^{11/2}\,e^{i13\pi/12}$$

Svar: $\arg z = 13\pi/12 + n2\pi$, n = heltal