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Opgave 030

$$Define: a_z = 4 \cdot \sqrt{3}$$
$$Define: b_z = -4$$

$$Define: a_w = 0$$
$$Define: b_w = 8$$

$$z = a_z + i \cdot b_z \approx -4 \cdot i + 6{,}928203$$

$$w = a_w + i \cdot b_w = 8 \cdot i$$

$$Define: r_z = \sqrt{a_z^2 + b_z^2}$$
$$r_z = 8$$

$$Define: z_\theta = \tan^{-1}\left(\frac{b_z}{a_z}\right)$$
$$z_\theta \approx -0{,}5235988$$

$$Define: r_w = \sqrt{a_w^2 + b_w^2}$$
$$r_w = 8$$

$$Define: w_\theta = \tan^{-1}\left(\frac{b_w}{a_z}\right)$$
$$w_\theta \approx 0{,}8570719$$

$$z \cdot w = r_z \cdot r_w \cdot (\text{COS}(z_\theta + w_\theta) + i \cdot \text{SIN}(z_\theta + w_\theta)) \approx 20{,}94892 \cdot i + 60{,}47432$$

$$\frac{z}{w} = \frac{r_z}{r_w} \cdot (\text{COS}(z_\theta - w_\theta) + i \cdot \text{SIN}(z_\theta - w_\theta)) \approx -0{,}9819805 \cdot i + 0{,}1889822$$

$$\frac{1}{z} = \frac{1}{r_z} \cdot (\text{COS}(z_\theta) - i \cdot \text{SIN}(z_\theta)) \approx 0{,}0625 \cdot i + 0{,}1082532$$