Panel 11

Homework:

(1) What is the geometric object described by $|z - i| = 2$?

(2) Show that two non-zero vectors z_1, z_2 are perpendicular iff $\mathrm{Re}(z_1 \bar{z}_2) = 0$

(3) Suppose that $|z| = 1$. Prove that $|z - w| = |1 - \bar{z} w|$

(4) Find $\mathrm{Arg}(z)$ for

a) $1 - i$ b) $-\sqrt{3} + i$ c) $\frac{2}{i-1}$

(5) Convert from rectangular to polar form

a) -4 b) $6 - 6i$ c) $-7i$ d) $-2\sqrt{3} - 2i$

(6) Convert from polar to rectangular form

a) $\mathrm{cis}\left(\frac{\pi}{2}\right)$ b) $4\,\mathrm{cis}\left(\frac{7\pi}{3}\right)$ c) $2\,\mathrm{cis}\left(-\frac{3\pi}{4}\right)$

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