

Panel 1

HW 1Complex Analysis

① Compute the following values:

a) $(3-2i) \cdot (2+4i)$ b) $\operatorname{Re} \left(\frac{3-i}{1+4i} \right)$ c) $\operatorname{Im} (i^{345})$

② Prove the distributive law $z_1 \cdot (z_2 + z_3) = z_1 z_2 + z_1 z_3$ holds for all complex numbers z_1, z_2, z_3

③ Show that $1+i$ solves $z^2 - 2z + 2 = 0$. Find a second solution.

④ Solve $(3+2i)z = 1+i$ for $z = x+iy$

⑤ What is the square root of $z = 3+4i$?