Problems - Section 34

(A) Verify the identity $\sin(z_1 + z_2) = \sin z_1 \cos z_2 + \cos z_1 \sin z_2$.

(12) Use the Reflection Principle to show that $\overline{\sin z} = \sin \bar{z}$ and $\overline{\cos z} = \cos \bar{z}$.

(14a) Show that $\overline{\cos(iz)} = \cos(i\bar{z})$ is true for all z.

(14b) Show that $\overline{\sin(iz)} = \sin(i\bar{z})$ is true if and only if $z = n\pi i, \quad (n = \ldots, -2, -1, 0, 1, 2, \ldots)$.