PROBLEM:

Evaluate the following and give the answer in both rectangular and polar form. In all cases, assume that the complex numbers are $z_1 = -2 - j\sqrt{2}$ and $z_2 = 4e^{j3\pi/4}$.

(a) Conjugate: z_1^*

(b) $j z_2$

(c) z_2/z_1

(d) z_2^2

(e) $z_1^{-1} = 1/z_1$

(f) $z_1 z_1^*$

(g) $z_1 + z_2^*$

(h) $|z_2|^2 = z_2 z_2^*$

(i) $z_1 z_2$

Note: z^* means the "conjugate" of z. Part (h) is the *magnitude-squared*.