Problem Set 8

[J]=Jacobson. Problems 7-10 are based on stuff we will dicuss on Wednesday (and maybe Friday).

(1) [J] p. 349 #4
(2) [J] p. 353 #1
(3) [J] p. 396 #1
(4) [J] p. 397 #6
(5) [J] p. 397 #7
(6) Finish the proof of the extension-of-basis lemma from the beginning of Monday's class: if (V, B) is a symplectic vector space (that is, B is assumed non-degenerate and alternating), then a linearly independent, isotropic subset $\{u_1, \ldots, u_k\} \subset V$ may be extended to a symplectic basis of V. [Notes: in the proof, V was called U'' and the span of the u_i was R. Also, a set $S \subset U$ is isotropic if $B(S, S) = \{0\}$.]
(7) [J] p. 361 #1
(8) [J] p. 361 #3
(9) [J] p. 361 #4
(10) [J] p. 404 #1