16.16 Group 4

a) Let $r \in R$, a Boolean ring with unity.

We know $(-r)\cdot(-r) = r^2 = r$. Also, $(-r)^2 = -r$,

so $r = -r$. Then $2r = 0$.

b) Let $r, s \in R$. Consider $r^2 + s^2 = r + s = (r+s)^2$

$= (r+s)(r+s) = r^2 + sr + rs + s^2$. Since

$r^2 + s^2 = r^2 + sr + rs + s^2$, we know $sr + rs = 0$

and $sr = -rs$. But from (a), every

$r \in R$, $r = -r$. So $sr = rs$.