NAME:_____

BEM 103 QUIZ 5

1. *Please define the efficient portfolio frontier*:____The set of portfolio with minimal variance condition on return_____

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2. *Stock A has expected return r_A and stock B has return r_b What is the expected return of a portfolio is weighted W_A on stock a and the rest W_B on Stock B?* _____

Let r_p be the portfolio return. _____$r_{f=}$ $W_A\, r_A + W_B\, r_b$ _____

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3. *Stock A has variance σ_A^2, stock B has variance σ_B^2, and the two stocks have covariance σ_{AB} if a portfolio is equally weighted with each stock what is its variance?*_____

Letσ_p^2 be the portfolio variance. $\sigma_p^2 = W_A^2\sigma_A^2 + 2W_AW_b\sigma_{AB} + W_B^2\sigma_B^2$

In the case of the equally weighted portfolio $\sigma_p^2 = 0.25\sigma_A^2 + 0.5\sigma_{AB} + 0.25\sigma_B^2$

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4. *Suppose $r_A > r_b$. What portfolio produces a return equal to r^* where $r_A > r^* > r_B$? what is its variance?* _____*We need to find W^*_such that*____ $r^* = W^* r_A + (1- W^*) r_b$

_ $r^* = W^* r_{A+} (1- W^*) r_B \Leftrightarrow r^* = W^* (r_A - r_B) + r_B$

Or $W^* = (r^* - r_B)/(r_A - r_B)$

$\sigma_p^2 = \left(\frac{r^* - r_B}{r_A - r_B}\right)^2 \sigma_A^2 + 2\left(\frac{r^* - r_B}{r_A - r_B}\right)\left[1 - \left(\frac{r^* - r_B}{r_A - r_B}\right)\right]\sigma_{AB} + \left[1 - \left(\frac{r^* - r_B}{r_A - r_B}\right)^2 \sigma_B^2\right.$.