

**Key to Quiz: 2/27/12**

**Quiz:** Assume you are planning to invest in \$100,000 in some combination of Boeing and Sprint and \$400,000 in risk-free Treasury bills. The expected return on Boeing is 12% and on Sprint is 22%. The standard deviation (volatility) of returns is expected to be 11% on Boeing and 18% on Sprint. The correlation between the returns on Boeing and Sprint equals +0.3. The risk-free rate equals 1%. The Sharpe Ratios for various combinations of Boeing and Sprint equal:

<u>% Boeing</u>	<u>Sharpe</u>	<u>% Boeing</u>	<u>Sharpe</u>	<u>% Boeing</u>	<u>Sharpe</u>
135	0.53	75	1.28	15	1.23
115	0.78	55	1.35	-5	1.15
95	1.07	35	1.31	-25	1.08

- Set up the calculations needed to determine the expected return and standard deviation of the optimal portfolio of Boeing and Sprint. Note: you have split \$100,000 between these two stocks.
- Set up the calculations needed to determine the expected return and standard deviation of your overall portfolio. Note: this is your overall portfolio in which you have invested a total of \$500,000.
- Sketch Boeing, Sprint, and both of your portfolios (a and b) on a risk-return graph.

+3 (a.  $E(R_p) = .55(12) + .45(22)$  (9))

+3 ( $SD(R_p) = \sqrt{(.55)^2(11)^2 + (.45)^2(18)^2 + 2(.55)(.45)(0.3)(11)(18)}$  (13))

+3 (b.  $E(R) = \frac{100,000}{500,000}(E(R_p)) + \frac{400,000}{500,000}(1)$  (4))

+3 ( $SD(R) = \frac{100,000}{500,000}(SD(R_p))$  (6))

