Key to 1:25 Quiz: 2/20/12

Quiz: Given the following information, calculate the standard deviation of returns on American Express (AXP) and Smuckers (SJM) and the covariance and correlation between the returns on these stocks.

	Return on:	
Year	AXP	SJM
2011	-6%	+30%
2010	+17%	+6%
2009	+132%	+37%
2008	-65%	-1%

Note: You don't have to solve anything, just set everything up.

$$SD(R_{AXP}) = \sqrt{Var(R_{AXP})}$$ (1)

+5

$$Var(R_{AXP}) = \frac{1}{3}((-6 - \bar{R}_{AXP})^2 + (17 - \bar{R}_{AXP})^2 + (132 - \bar{R}_{AXP})^2 + (-65 - \bar{R}_{AXP})^2)$$ (10)

+5

$$\bar{R}_{AXP} = \frac{1}{4}(-6 + 17 + 132 - 65)$$ (10)

+1

$$SD(R_{SJM}) = \sqrt{Var(R_{SJM})}$$

$$Var(R_{SJM}) = \frac{1}{3}\left((30 - \bar{R}_{SJM})^2 + (6 - \bar{R}_{SJM})^2 + (37 - \bar{R}_{SJM})^2 + (-1 - \bar{R}_{SJM})^2\right)$$ (5)

$$\bar{R}_{SJM} = \frac{1}{4}(30 + 6 + 37 - 1)$$ (5)

+5

$$Cov(R_{AXP}, R_{SJM}) = \frac{1}{3}\left((-6 - \bar{R}_{AXP})(30 - \bar{R}_{SJM}) + (17 - \bar{R}_{AXP})(6 - \bar{R}_{SJM}) + (132 - \bar{R}_{AXP})(37 - \bar{R}_{SJM}) + (-65 - \bar{R}_{AXP})(-1 - \bar{R}_{SJM})\right)$$ (14)

+5

$$Corr(R_{AXP}, R_{SJM}) = \frac{Cov(R_{AXP}, R_{SJM})}{SD(R_{AXP})SD(R_{SJM})}$$ (5)