**REAL OPTIONS 2013 CLASS EXERCISE**

**NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Eventually Marianne switches to the aged, kind Colonel Brandon (annual income ₤ 1=y) over the exciting, handsome Willoughby (ignoring his real marriage options and gambling debts, income ₤1=x) even though the switching costs ( ₤1 in emotional pain) are great. Both are volatile (10%), are not correlated, are not very convenient (5%), and their fortunes are invested in gilts which yield 5%. The Colonel calculates that 11=-1.7472,12=2.8346, . Is she right even if she receives all of her husband’s income, and Willoughby still has an income of ₤1?

Option to switch once:



where β11 and β12 satisfy the characteristic root equation

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Value after switching, when there is no option to switch back:



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