Quiz C: 4/11/12 Name & Time Key

Quiz: Suspend Campaign Company has a current stock price of $50. For the next two years, Suspend's stock price will either rise by $6 per share or fall by $4 per share.
a. Set up the calculations needed to determine the value of a put today with a strike price of $60 if the risk-free interest rate is 1% per year and is not expected to change.
b. Set up the calculations needed to determine how many bonds would you need to buy or sell a year from today if Suspend's stock price falls by $4 per share next year?

Note: Bonus WSJ Questions on back of page

a. $S_u = 50+6=56$; $S_d = 50-4=46$

$S_{uu} = 50+6+6=62$; $S_{ud} = S_{du} = 50+6-4=52$; $S_{dd} = 50-4-4=42$

$K = 60$

$P_{uu} = 0$; $P_{ud} = P_{du} = 60-52=8$; $P_{dd} = 60-42=18$

$t=1$

$\Delta_u = \frac{0-8}{62-52} = -.8$; $B_u = \frac{8-52(-.8)}{1.01} = 49.1089$

$P_u = 56(-.8)+49.1089 = 4.3089$

$\Delta_d = \frac{8-18}{52-42} = -1$; $B_d = \frac{18-42(-1)}{1.01} = 59.4059$

$P_d = 46(-1)+59.4059 = 13.4059$

$t=0$

$\Delta = \frac{4.3089-13.4059}{56-46} = -.9097$; $B = \frac{13.4059-(-.9097)(46)}{1.01} = 54.705$

$P = 50(-.9097)+54.705 = 9.22$

b. 1) change in stock $= -1-(-.9097) = -.0903$

=> short sell .0903 shares @ 46 $= .0903(46) = 4.1538$

=> By 4.1538 of bonds

or 2) Bonds if do nothing $= 54.705(1.01) = 55.252$

=> change in bonds $= 59.4059 - 55.252 = 4.1538$

=> buy 4.1538 bonds