Introduction to Financial Mathematics
Math 30610 Homework 10

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due 4/26 in class

There are 8 exercises on this homework sheet. Unless otherwise specified, all exercises are from the textbook. You are welcome to use any calculator, spreadsheet or programming language, as long as you explain clearly and completely your solution.

1. Coca Cola has been paying equal quarterly dividends, which change from year to year. The dividend paid on 11/30/2021 was 0.42. Ignoring a change in pattern due to Covid, quarterly dividend payments have been increasing by 0.02 every year. The Coca Cola stock price on 11/30/2021 was 52.45. Compute the constant effective annual interest implied by the Dividend Discount Model.
2. 7.1.1
3. 7.1.2
4. 7.1.6
5. 7.1.11
6. 7.2.1 (a) and (b) only
7. 7.2.2
8. 7.2.5
9. 7.2.12
10. (Extra credit, counts as 2 problems) Back to the Coca Cola exercise. The yield curve on 11/30/2021 was $s_0(\frac{1}{12}) = 0.11\%$, $s_0(\frac{2}{12}) = 0.05\%$, $s_0(\frac{3}{12}) = 0.05\%$, $s_0(\frac{6}{12}) = 0.1\%$, $s_0(1) = 0.24\%$, $s_0(2) = 0.52\%$, $s_0(3) = 0.81\%$, $s_0(5) = 1.14\%$, $s_0(7) = 1.36\%$, $s_0(10) = 1.43\%$, $s_0(20) = 1.85\%$, $s_0(30) = 1.78\%$. Compute the implied parallel shift in the yield curve implied by the Dividend Discount Model.