

Midterm Review Problems - Selected Numerical Answers

1. (a) $d(.5) = .97947$, $d(1) = .94635$, $d(1.5) = .93226$
 (b) $\hat{r}(1.5) = .047315$, $f(1) = .06999$
 (c) $.047404$
2. (a) $11,245.36 = \frac{10,000}{(1 + \frac{y}{2})^{40}} + 400 \sum_{i=1}^{40} \frac{1}{(1 + \frac{y}{2})^i}$. (Other forms are acceptable).
 (b) $y < .08$
3. $.05051$
4. $.05259$
5. $108,175.72$
6. $y_2 < y_3 < y_4 < y_1$
7. (a) $D_{Mac}^A = 11.9532$, $DV01^A = 21,272.03$
 (b) Drop by 297,808.47
 (c) $F_3 = 26,018,550$
8. (a) $D_{Mac}^A = 14.15606$, $DV01^A = 69,392.43$
 (b) Increase by 1,457,241.03
 (c) $43,464,350.05$
9. (a) $D_{Mac}^{(2)} > D_{Mac}^{(3)} > D_{Mac}^{(1)}$
 (b) $C^{(2)} > C^{(3)} > C^{(1)}$
 (c) $DV01^{(3)} > DV01^{(2)} > DV01^{(1)}$
10. (a) $D_{Mac}^{(3)} > D_{Mac}^{(1)} > D_{Mac}^{(2)}$
 (b) $C^{(3)} > C^{(1)} > C^{(2)}$
 (c) $DV01^{(2)} > DV01^{(1)}$ (Can't compare the DV01 of #3 to #1 or #2 without more information)
11. $q = \frac{1 - 3d(5) + 2d(10)}{\frac{1}{2} \sum_{i=1}^{10} d(\frac{i}{2}) - \sum_{i=11}^{20} d(\frac{i}{2})}$
12. B will be better off.