

QUIZ 3

Show all work. Label and clearly explain your answer. *This is very important.* 1) You must explain how you arrived at your answer in order to get full credit. 2) If you do show your work, and your answer is wrong, you can still earn a substantial amount of credit depending on how serious the error is. 3) If your answer is wrong, and you don't show your work, you will get a zero.

Buster's Badminton Bazaar produces high performance Badminton racquets. The **current price of a racquet is \$240**. Buster's expects that, for the indefinite future, the racquet price will rise only by the inflation rate, which is expected to be **one percent per year**.

a. What will the nominal racquet price be in five years?

b. What will the nominal racquet price be in fifty years?

c. Suppose that Buster's expects to sell 3,000 racquets next year, and the same number each subsequent year for the next fifty years. If the **nominal interest rate is 6%**, what is the present value of Buster's expected sales revenue from the racquets?

a. $(NRP)_{1st\ year} = 240 \times 1.01 = 242.4$ b.

$(NRP)_{2nd\ year} = 240 \times 1.01^2 = 244.82$

$(NRP)_{3rd\ year} = 240 \times 1.01^3 = 247.27$

$(NRP)_{4th\ year} = 240 \times 1.01^4 = 249.74$

$(NRP)_{5th\ year} = 240 \times 1.01^5 = 252.24$

c. $PV = \left(\frac{242.4}{1.06^1} + \frac{244.82}{1.06^2} + \dots + \frac{394.71}{1.06^{50}} \right) \times 3000$

By calculation of Matlab:

$PV = 1.3245 \times 10^7$

0	240
1	242.40
2	244.82
3	247.27
4	249.74
5	252.24
6	254.76
7	257.31
8	259.89
9	262.48
10	265.11
11	267.76
12	270.44
13	273.14
14	275.87
15	278.63
16	281.42
17	284.23
18	287.08
19	289.95
20	292.85
21	295.77
22	298.73
23	301.72
24	304.74
25	307.78
26	310.86
27	313.97
28	317.11
29	320.28
30	323.48
31	326.72
32	329.99
33	333.29
34	336.62
35	339.98
36	343.38
37	346.82
38	350.29
39	353.79
40	357.33
41	360.90
42	364.51
43	368.15
44	371.84
45	375.55
46	379.31
47	383.10
48	386.93
49	390.80
50	394.71