HW 3

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EECE 490B
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3-7:

a) Interest = Amount – Principal = $1,200,000 - $1,000,000 = $200,000
Interest Rate (per year) = ($200,000 * 100)/($1,000,000 * 15) = 1.33%

b) Value of gift = $1,000,000 * (1.0133^15) = $1,219,190

3-12:

Sum of Money = (1/((1+0.04)^4)) * $8,250 = $7,052.13

3-16:

Amount deposited today = $150,000/(1.06^5) = $112,095

3-18:

a) Money = $4,000 * (1.05)^5 = $5,105
b) Money = $4,000 * (1.05)^10 = $6,516
c) Money = $4,000 * (1.05)^20 = $10,613
d) Money = $4,000 * (1.05)^50 = $45,870
e) Money = $4,000 * (1.05)^100 = $526,005

3-22:

Money to spend on a motorcycle = $16,000 – ($12,000/(1.02^4)) = $4,909

3-42:

Effective Interest rate = 0.0931 = (1 + i)^4 – 1
I = 0.0225 * 4 = 9% per year

3-46:

$10,000 = $9,800(1 + i/12)^6
I =4.047%
Effective Annual Interest Rate =((1 + 0.04047/12)^12) – 1 = 0.0412 = 4.12% compounded monthly
Nominal Annual Interest Rate = ((1 + 0.0412/12)^12) – 1 = 0.0408 = 4.08% compounded monthly

3-52:

Nominal annual interest rate = 1.75% * 12 = 21%
Effective interest rate = (e^21%)-1 = 23.37%

3-56:

Money Collected = $12
Money earned per customer = $12 + 6*1*(1)/100 = $12.06
Extra money per customer in a year = 6 * $0.06 = $0.36
Total extra money = $0.36 * 100,000 = $36,000