**There are three (3) types of textbook based homework items located at the end of each chapter. These include Discussion Questions (DQ), Exercises (E), and Problems (P). Some homework items have been custom created.**

**Complete the following from the textbook:**

* **Chapter 9: P6, P9, P10, P11, P12, P13, P15**

**Chapter 9: P6**

* Determine the present values (PVs) if $5,000 is received in the future (i.e., at the end of each indicated time period) in each of the following situations:
* **a. 5 percent for ten years**

P = A/(1 + nr)

P = 5000/ [1+(.05 \* 10)] = $3,333.33

PV = $3,333.33

* **b. 7 percent for seven years**
* P = 5000/ [1+(.07 \* 7)] = $3,355.70
* PV = $3,355.70
* **c. 9 percent for four years**

P = 5000/ [1+(.09 \* 4)] = $3,676.47

PV = $3,676.47

**Chapter 9: P9**

Assume you are planning to invest $5,000 each year for six years and will earn 10 percent per year. Determine the future value (FV) of this annuity if your first $5,000 is invested at the end of the first year.



**Chapter 9: P10**

Determine the present value (PV) now of an investment of $3,000 made one year from now and an additional $3,000 made two years from now if the annual discount rate is 4 percent.

PV = ($3,000 / 1.04) + [$3,000/ (1.04 \* 1.04)] = $5,658.29

**Chapter 9: P11**

What is the present value (PV) of a loan that calls for the payment of $500 per year for six years if the discount rate is 10 percent and the first payment will be made one year from now? How would your answer change if the $500 per year occurred for ten years?

10% for 6 years: $500 (4.355) = $2,177.50

10% for 10 years: $500 (6.145) = $3,072.50

**Chapter 9: P12**

Determine the annual payment on a $500,000, 12 percent business loan from a commercial bank that is to be amortized over a five-year period.

A= P{r(1+r)^n/(1+r)^n-1}

P= $500,000 Principal Loan Amount, A = Annual Payment, r = 12% interest rate, n = 5 years

500,000{.12(1+.12)^5/(1+.12)^5-1} = 500,000{.12(1.12)^5/(1.12)^5-1} =

500,000{.12(1.7623)/1.7623-1} = 500,000{.2114/.7623} = 500,000(.2774) = $138,709.1696

**A = $138,709.1696**

**Chapter 9: P13**

Determine the annual payment on a $15,000 loan that is to be amortized over a four-year period and carries a 10 percent interest rate. Prepare a loan amortization schedule for this loan.

P= Principal Loan Amount $15,000, r = Interest Rate @ 10%, n = number of payments (Annual Payments), A = payment amounts per period

15,000{0.10(1+0.10)^4/(1+.10)^4-1} = 15,000{.10(1.10)^4/(1.10)^4-1} =

15,000{.10(1.4641)/1.4641-1} = 15,000{.14641/.4641} = 15,000{.3154} = $4732.06

**A = $4732.06**



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **YEAR** | **ANNUAL PAYMENT** | **INTEREST PAYMENT** | **PRINCIPLE REPAYMENT** | **LOAN BALANCE** |
| 0 | NIL | NIL | NIL | $15,000 |
| 1 | $1,500.00 | $3,232.00 | $11,768.00 |  |
| 2 | $1,177.00 | $3,555.00 | $8,213.00 |  |
| 3 | $821.00 | $3,911.00 | $4,302.00 |  |
| 4 | $430.00 | $4,302.00 | $0.00 | $0.00 |

**Chapter 9: P15**

Assume a bank loan requires an interest payment of $85 per year and a principal payment of $1,000 at the end of the loan’s eight-year life.

* a. At what amount could this loan be sold for to another bank if loans of similar quality carried an 8.5 percent interest rate? That is, what would be the present value (PV) of this loan?

1000/8=125125+85=210210/.085=2470.59

**PV = $2,470.59**

* b. Now, if interest rates on other similar quality loans are 10 percent, what would be the PV of this loan?

210/.1=2100

**PV = $2,100.00**

* c. What would be the PV of the loan if the interest rate is 8 percent on similar quality loans?

210/.08=2625

**PV = $2,625.00**