**1.**

PV(10%) = $3,306.37

PV(18%) = $2,794.22

PV(24%) = $2,489.88

**2.** To find the PVA, we use the equation:

PVA = *C*({1 – [1/(1 + *r)*]*t* } / *r* )

At a 5 percent interest rate:

X-5%: PVA = $42,646.93

Y-5%: PVA = $40,605.54

X-15%: PVA = $28,629.50

Y-15%: PVA = $30,275.86

**3.**

FV-8% = $5,307.71

FV-11% = $5,520.96

FV-24% = $6,534.81

**4.**

15 years: PVA = $48,271.94

40 years: PVA = $70,658.06

75 years: PVA = $75,240.70

PV of a perpetuity:

PV= $75,714.29

**5.**

*C* = $3,887.72

**6.** To find the PVA, we use the equation:

PVA = $411,660.36

**7.**

20 years: FVA = $262,781.16

40 years: FVA = $2,459,072.63

**8.** *C* = $6,575.77

**9.** *C* = $9,440.02

**10.** PV = $347,222.22

**11.** *r* = 6.67%

**12.**

1. EAR = 8.24%
2. EAR = 17.23%
3. EAR = 12.75%
4. EAR = 16.18%

**13.**

1. APR = 8.42%
2. APR = 18.20%
3. APR = 8.99%
4. APR = 15.27%

**14.**

1- First National: EAR = 15.16%

2- First United: EAR = 15.03%

**15.** APR = 14.85%

**16.**

FV = $8,505.93

**17.**

FV in 5 years = $7,163.64

FV in 10 years = $11,403.94

FV in 20 years = $28,899.97

**18.**

PV= $28,804.71

**19.**

EAR = (1 + .30)12 – 1 = 2,229.81%

**20.**

*C* = $1,353.15

EAR = 7.12%

**21.**

*t* = 48.86 months

**22.**

APR = (52)33.33% = 1,733.33%

EAR = [1 + .3333]52 – 1 = 313,916,515.69%

**23.**

*r* = $1,800 / $95,000 = .0189 or 1.89% per month

The interest rate is 1.89% per month. To find the APR, we multiply this rate by the number of months in a year, so:

APR = (12)1.89% = 22.74%

And using the equation to find an EAR:

EAR = [1 + (APR / *m*)]*m* – 1

EAR = [1 + .0189]12 – 1 = 25.26%

**24.** FVA = $678,146.38

**25.** FVA = $647,623.45

**26.**

PVA = $34,843.71

**27.**

EAR = 11.46%

PV = $2,320.36

**28.**

PV = $6,570.86

**29.**

.07(10) = .7

(.07)(10) = (1 + *r*)10 – 1

*r* = 1.71/10 – 1 = 5.45%

**30.**

EAR = 8.17% per six months

EAR = 4.00% per quarter

EAR = 1.32% per month

**48.**

PV = $138,724.68

**55.**

*C* = $10,519.17

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Year | Beginning Balance | Total Payment | Interest Payment | Principal Payment | Ending  Balance |
|  | 1 | $42,000.00 | $10,519.17 | $3,360.00 | $7,159.17 | $34,840.83 |
|  | 2 | 34,840.83 | 10,519.17 | 2,787.27 | 7,731.90 | 27,108.92 |
|  | 3 | 27,108.92 | 10,519.17 | 2,168.71 | 8,350.46 | 18,758.47 |
|  | 4 | 18,758.47 | 10,519.17 | 1,500.68 | 9,018.49 | 9,739.97 |
|  | 5 | 9,739.97 | 10,519.17 | 779.20 | 9,739.97 | 0.00 |

In the third year, $2,168.71 of interest is paid.

Total interest over life of the loan = $10,595.86

**56.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Year | Beginning  Balance | Total Payment | Interest Payment | Principal Payment | Ending  Balance |
|  | 1 | $42,000.00 | $11,760.00 | $3,360.00 | $8,400.00 | $33,600.00 |
|  | 2 | 33,600.00 | 11,088.00 | 2,688.00 | 8,400.00 | 25,200.00 |
|  | 3 | 25,200.00 | 10,416.00 | 2,016.00 | 8,400.00 | 16,800.00 |
|  | 4 | 16,800.00 | 9,744.00 | 1,344.00 | 8,400.00 | 8,400.00 |
|  | 5 | 8,400.00 | 9,072.00 | 672.00 | 8,400.00 | 0.00 |

In the third year, $2,016 of interest is paid.

Total interest over life of the loan = $10,080