Week 13

1.

Year	Beginning Balance	Deposit	Interest	Ending Balance
1	0	$2,000	0	$2,000.00
2	$2,000	$2,000	$80.00	$4,080.00
3	$4,080	$2,000	$163.20	$6,243.20
4	$6,243.20	$2,000	$249.73	$8,492.93
5	$8,492.93	$2,000	$339.72	$10,832.65

2. R = 12,000
i = 0.015
n = 12

$$A = 12{,}000\,\frac{(1015)^{12} - 1}{0.015} = 12{,}000\,\frac{0.19562}{0.015} = 12{,}000(13.041333) = \$156{,}496.00$$

12 x $12,000 = $144,000 deposited
Interest = $156,496 - $144,000 = $12,496.00

3. R = 500
i = .09/12 = .0075
n = 5 x 12 = 60

$$A = 500\,\frac{(1.0075)^{60} - 1}{.0075} = 500\,\frac{0.56568}{0.0075} = 500(75.424) = \$37{,}712$$

4. R = 3,000
i = .10/4 = .025
n = 4x7 = 28

$$A = 3{,}000\,\frac{(1.025)^{28} - 1}{.025} = 3{,}000\,\frac{.99649}{.025} = 3{,}000(39.8596) = \$119{,}578.80$$

Deposits: 28 x 3,000 = $84,000

Interest = $119,578.80 - $84,000 = $35,578.80

5. A = 2,000,000
i = .03/2 = .015
n = 5 x 2 = 10

$$2{,}000{,}000 = R\,\frac{(1.015)^{10} - 1}{.015}$$

$$2{,}000{,}000 = R\,\frac{0.16054}{0.015}$$

$$2{,}000{,}000 = R(10.702667)$$

$$\frac{2000000}{10.702667} = R$$

$$\$186{,}869.32 = R$$

Interest = $2,000,000.00 - $1,868,693.20 = $131,306.80

6. A = 5,000
i = .06/12 = .005
n = 2 x 12 = 24

$$5000 = R\,\frac{(1.005)^{24} - 1}{.005}$$

$$5000 = R\,\frac{1.12716}{.005}$$

$$5000 = R(25.432)$$

$$\frac{5000}{25.432} = R$$

$$\$196.60 = R$$