Learning Plan 9

Chapter 12

Question 1

(pages 464 - 466 in the textbook)

Find the finance charge on an unpaid balance of $1476.80 in a revolving charge account if the monthly interest rate is 1.6%.

Solution

$$0.016 \cdot 1476.80 = 23.6288 \approx 23.63$$

Question 2

Complete the table to determine the unpaid balances and the finance charges. The interest rate is 1.5% on the unpaid balance.

Month	Unpaid Balance Beginning of Month	Finance Charge	Purchases during Month	Returns	Payments	Unpaid Balance at the End of Month
Aug	$467.34		$48.73	$21.68	$110	
Sept			$253.83	$72.12	$185	

Solution

The finance charge for August is $ _____? (Round to the nearest cent).

$$0.015 \cdot 467.34 = 7.0101 \approx \$7.01$$

The unpaid balance at the end of August is _____?

$$467.34 + 7.01 + 48.73 - 21.68 - 110 = \$391.40$$

The unpaid balance at the beginnig of September is _____?

$$\$391.40$$

The finance charge for September is $ _____? (Round to the nearest cent).

$$0.015 \cdot 391.40 = 5.871 \approx \$5.87$$

The unpaid balance at the end of September is _____?

$$391.40 + 5.87 + 253.83 - 72.12 - 185 = \$393.98$$

Questions 3 - 4

Find the balance charge on an average daily balance of $\$1964.60$ in a revolving charge account if the monthly interest rate is 1.6%.

Solution

$$0.016 \cdot 1964.60 = 31.4336 \approx 31.43$$

Question 5

(p. 467)

Heather borrowed $\$5000$ on her credit card to purchase new furniture. Find the monthly interest charges, which are 1.8% per month on the unpaid balance. Find the interest charges if she moves the debt to a credit card charging 0.6% per month on the unpaid balance. Find the savings.

Solution

$$0.018 \cdot 5000 = 90$$

$$0.006 \cdot 5000 = 30$$

$$90 - 30 = 60$$

Questions 6-7

(page 475 - 476)

Find the total installment cost and the balance charge for an installment loan with these conditions.

Amount Financed	Down Payment	Cash Price	Number of Payments	Amount of Payment	Total Installment Cost	Finance Charge
$\$3000$	$\$500$	$\$3500$	12	$\$275$		

Solution

$$500 + 275 \cdot 12 = 3800$$

$$3800 - 3500 = 300$$

Questions 8 - 9

(pages 476)

Find the aproximate annual percentage rate using the approximate annual percentage rate formula.

Amount Financed	Finance Charge	# of Monthly Payments	Aproximate APR
$1857	$111.25	18	?

Solution

$$Aproximate\ APR = \frac{24 \cdot 111.25}{1857 \cdot (1 + 18)} = \frac{2670}{35283} \approx 0.0756738 \ldots \approx 7.6\%$$

Question 10

(page 477 - 478)

Find the annual percentage rate using the annual percentage rate table. Here are some conditions of the loan.

Amount Financed	Finance Charge	No. of Monthly Payments
$900	$27.09	6

$\frac{27.09 \cdot 100}{900} = 3.01$

Find the row associated with 6 payments
Look to the right to find 3.01.

Click here to view page 1 of the APR Table for Monthly Payment Plans.
Click here to view page 2 of the APR Table for Monthly Payment Plans.

Look to the top of the column to find (10.25%)

The annual percentage rate is 10.25%.

Page 1 of the Annual Percentage Rate Table for Monthly Payment Plans

Annual Percentage Rate Table for Monthly Payment Plans

Annual Percentage Rate (Finance Charge per $100 of Amount Financed)

Number of Payments	10.00%	10.25%	10.50%	10.75%	11.00%	11.25%	11.50%	11.75%	12.00%	12.25%	12.50%	12.75%	13.00%	13.25%	13.50%	13.75%
1	0.83	0.85	0.87	0.90	0.92	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.15
2	1.25	1.28	1.31	1.35	1.38	1.41	1.44	1.47	1.50	1.53	1.57	1.60	1.63	1.66	1.69	1.72
3	1.67	1.71	1.76	1.80	1.84	1.88	1.92	1.96	2.01	2.05	2.09	2.13	2.17	2.22	2.26	2.30
4	2.09	2.14	2.20	2.25	2.30	2.35	2.41	2.46	2.51	2.57	2.62	2.67	2.72	2.78	2.83	2.88
5	2.51	2.58	2.64	2.70	2.77	2.83	2.89	2.96	3.02	3.08	3.15	3.21	3.27	3.34	3.40	3.46
6	2.94	3.01	3.08	3.16	3.23	3.31	3.38	3.45	3.53	3.60	3.68	3.75	3.83	3.90	3.97	4.05
7	3.36	3.45	3.53	3.62	3.70	3.78	3.87	3.95	4.04	4.12	4.21	4.29	4.38	4.47	4.55	4.64
8	3.79	3.88	3.98	4.07	4.17	4.26	4.36	4.46	4.55	4.65	4.74	4.84	4.94	5.03	5.13	5.22
9	4.21	4.32	4.43	4.53	4.64	4.75	4.85	4.96	5.07	5.17	5.28	5.39	5.49	5.60	5.71	5.82
10	4.64	4.76	4.88	4.99	5.11	5.23	5.35	5.46	5.58	5.70	5.82	5.94	6.05	6.17	6.29	6.41

Question 11

(page 490)

Use the Amortization Table to determine the payment required to amortize a loan of $6300 at an annual interest rate of 10% with a term of 7 years. Payments are to be made annually.

Click here to view page 1 of the Amortization Table.

Click here to view page 2 of the Amortization Table.

The amount of each payment is $ 1294.08.

(Round to the nearest cent as needed.)

$6300 \cdot 0.20541 = 1294.083$

≈ 1294.08

Page 1 of the Amortization Table

Amortization Table

	Interest Rate per Period									
Period	$\frac{1}{2}\%$	1%	$1\frac{1}{2}\%$	2%	$2\frac{1}{2}\%$	3%	4%	6%	8%	10%
1	1.00500	1.01000	1.01500	1.02000	1.02500	1.03000	1.04000	1.06000	1.08000	1.10000
2	.50375	.50751	.51128	.51505	.51883	.52261	.53020	.54544	.56077	.57619
3	.33667	.34002	.34338	.34675	.35014	.35353	.36035	.37411	.38803	.40211
4	.25313	.25628	.25944	.26262	.26582	.26903	.27549	.28859	.30192	.31547
5	.20301	.20604	.20909	.21216	.21525	.21835	.22463	.23740	.25046	.26380
6	.16960	.17255	.17553	.17853	.18155	.18460	.19076	.20336	.21632	.22961
7	.14573	.14863	.15156	.15451	.15750	.16051	.16661	.17914	.19207	.20541
8	.12783	.13069	.13358	.13651	.13947	.14246	.14853	.16104	.17401	.18744
9	.11391	.11674	.11961	.12252	.12546	.12843	.13449	.14702	.16008	.17364
10	.10277	.10558	.10843	.11133	.11426	.11723	.12329	.13587	.14903	.16275
11	.09366	.09645	.09929	.10218	.10511	.10808	.11415	.12679	.14008	.15396

Question 12

(p. 491-492)

Use the Amortization Table to determine the payment required to amortize a loan of $6500 at an annual interest rate of 5% with a term of 10.5 years. Payments are to be made semiannually.

Click here to view page 1 of the Amortization Table.

Click here to view page 2 of the Amortization Table.

$10,5 \cdot 2 = 21$ payments.

$5\% \div 2 = 2,5\%$ semiannualy.

The amount of each payment is $ 401.64.

(Round to the nearest cent as needed.)

$6500 \cdot 0,06179 = 401,635$

$\approx 401,64$

Page 1 of the Amortization Table

Amortization Table

	Interest Rate per Period									
Period	½%	1%	1½%	2%	2½%	3%	4%	6%	8%	10%
1	1.00500	1.01000	1.01500	1.02000	1.02500	1.03000	1.04000	1.06000	1.08000	1.10000
2	.50375	.50751	.51128	.51505	.51883	.52261	.53020	.54544	.56077	.57619
3	.33667	.34002	.34338	.34675	.35014	.35353	.36035	.37411	.38803	.40211
4	.25313	.25628	.25944	.26262	.26582	.26903	.27549	.28859	.30192	.31547
5	.20301	.20604	.20909	.21216	.21525	.21835	.22463	.23740	.25046	.26380
6	.16960	.17255	.17553	.17853	.18155	.18460	.19076	.20336	.21632	.22961
7	.14573	.14863	.15156	.15451	.15750	.16051	.16661	.17914	.19207	.20541
8	.12783	.13069	.13358	.13651	.13947	.14246	.14853	.16104	.17401	.18744
9	.11391	.11674	.11961	.12252	.12546	.12843	.13449	.14702	.16008	.17364
10	.10277	.10558	.10843	.11133	.11426	.11723	.12329	.13587	.14903	.16275
11	.09366	.09645	.09929	.10218	.10511	.10808	.11415	.12679	.14008	.15396
12	.08607	.08885	.09168	.09456	.09749	.10046	.10655	.11928	.13270	.14676
13	.07964	.08241	.08524	.08812	.09105	.09403	.10014	.11296	.12652	.14078
14	.07414	.07690	.07972	.08260	.08554	.08853	.09467	.10758	.12130	.13575
15	.06936	.07212	.07494	.07783	.08077	.08377	.08994	.10296	.11683	.13147
16	.06519	.06794	.07077	.07365	.07660	.07961	.08582	.09895	.11298	.12782
17	.06151	.06426	.06708	.06997	.07293	.07595	.08220	.09544	.10963	.12466
18	.05823	.06098	.06381	.06670	.06967	.07271	.07899	.09236	.10670	.12193
19	.05530	.05805	.06088	.06378	.06676	.06981	.07614	.08962	.10413	.11955
20	.05267	.05542	.05825	.06116	.06415	.06722	.07358	.08718	.10185	.11746
21	.05028	.05303	.05587	.05878	.06179	.06487	.07128	.08500	.09983	.11562
22	.04811	.05086	.05370	.05663	.05965	.06275	.06920	.08305	.09803	.11401

Question 13

Use the real estate amortization table to find the monthly payment for the following loan

Amount of Loan	Interest Rate	Term of Loan	Monthly Payment
$350,000	$6\frac{1}{2}\%$	10 years	____

Real Estate Amortization Table

Real Estate Amortization Table (Principal and Interest per Thousand Dollars Borrowed)

Terms in Years	4%	4½%	5%	5½%	6%	6½%	7%	7½%	8%	Terms in Years
10	10.12	10.36	10.61	10.85	11.10	11.35	11.62	11.88	12.14	10
15	7.40	7.65	7.91	8.17	8.44	8.71	8.99	9.28	9.56	15
20	6.06	6.33	6.60	6.88	7.16	7.46	7.76	8.06	8.37	20
25	5.28	5.56	5.85	6.14	6.44	6.75	7.07	7.39	7.72	25
30	4.77	5.07	5.37	5.68	6.00	6.32	6.65	7.00	7.34	30

YOU ANSWERED: nothing

$350\,000 \div 1000 = 350$

From the table $6\frac{1}{2}\%$ for 10 years $\longrightarrow$ 11.35

$350 \cdot 11.35 =$ (3972.50) ← monthly payment