LESSON 8.4 Installment Loans—Monthly Payment Allocation

Vocab:

Repayment Schedule- how much you owe, how much you pay, how much you have paid, and when payments are due all on one big table.

LESSON 8.4

EXAMPLE 1

Melinda and Xavier Garza obtained a loan for a used pickup truck. See the loan of $1,800 at 8% for 6 months in the repayment schedule in **Figure 8.1.** Show the calculation for the first payment. What are the **(a)** interest, **(b)** payment to principal, and **(c)** new principal after they make the first payment?

Repayment Schedule for a $1,800 Loan at 8.0% for 6 Months

Payment Number	Monthly Payment	Amount for Interest	Amount for Principal	Balance $1,800.00
1	307.08	a) $12	b) 295.08	c) 1504.92
2				
3	307.08	8.05	299.03	908.85
4	307.08	6.06	301.02	607.82
5	307.08	4.05	303.03	304.80
6	307.08	2.03	305.05	−0.25

a) $I = Prt = (1800)(0.08)\left(\frac{1}{12}\right) = \$12$

b) $307.08 - \$12 = \$295.08$

c) $1800 - 295.08 = 1504.92$

LESSON 8.4

Complete these problems. Check your answers in the back of the book.

Regarding the loan for the Garzas from **Example 1**, compute the second month values for:

Repayment Schedule for a $1,800 Loan at 8.0% for 6 Months

Payment Number	Monthly Payment	Amount for Interest	Amount for Principal	Balance $1,800.00
1	$307.08	$12.00	$295.08	$1,504.92
2	$307.08	$10.03	$297.05	$1207.87
3	307.08	8.05	299.03	908.85
4	307.08	6.06	301.02	607.82
5	307.08	4.05	303.03	304.80
6	307.08	2.03	305.05	–0.25

1. The interest.

$I = Prt$

$= (1504.92)(0.08)(1/12) = \$10.03$

2. The payment to principal.

$307.08 - 10.03 = \$297.05$

3. The new balance.

$$\begin{array}{r} 1504.92 \\ -\ 297.05 \\ \hline 1207.87 \end{array}$$

LESSON 8.4

EXAMPLE 2

Anton Grindenko obtained a $6,000.00 loan to update his café's kitchen equipment at 8% for 36 months. The monthly payment is $187.80. The balance of the loan after 20 payments is $2,849.08. What is the interest for the first payment? What is the interest for the 21st payment? Why is the interest so much different for the two payments?

Interest on the first payment

$I = (6000)(0.08)\left(\frac{1}{12}\right) = \boxed{\$40}$

Interest on the 21st payment

$I = (2849.08)(0.08)\left(\frac{1}{12}\right) = \boxed{\$18.99}$

LESSON 8.4

Complete this problem. Check your answers in the back of the book.

4. You take out an $8,000 loan on a new motorcycle at 12% for 24 months. The monthly payment is $376.80. The balance of the loan after 15 payments is $3,222.44. What is the interest for the **(a)** first payment and **(b)** 16th payment?

a) $I = Prt$

$= (8000)(0.12)(\frac{1}{12}) = \boxed{\$80}$

b) $I = Prt$

$= (3222.44)(0.12)(1/12) = \boxed{\$32.22}$

LESSON 8.4

For Problems 8–14, complete the repayment schedule for a $2,400 loan at 12% for 12 months.

Repayment Schedule for a $2,400 Loan at 12% for 12 Months					
	Payment Number	Monthly Payment	Amount for Interest	Amount for Principal	New Principal
	1	$213.12	$24.00	$189.12	$2,210.88
	2	213.12	22.11	191.01	2,019.87
	3	213.12	20.20	192.92	1,826.95
	4	213.12	18.27	194.85	1,632.10
	5	213.12	16.32	196.80	1,435.30
8.	6	213.12	14.35	198.77	a. $1236.53
9.	7	213.12	12.37	a. $200.75	b. $1035.78

8a) 1435.30 − 198.77 = $1236.53

9a) 213.12 − 12.37 = $200.75

9b) 1236.53 − 200.75 = $1035.78

LESSON 8.5 Paying Off Installment Loans

Vocab:

Final Payment - the last payment on a loan (this closes out the loan)

LESSON 8.5

EXAMPLE 1

See **Figure 8.2** for the first 3 months of the repayment schedule for Darlene and Hayden Grant's home repair loan of $1,800 at 12% interest for 6 months. What is the final payment if they pay the loan off with the fourth payment?

Repayment Schedule for a $1,800 Loan at 12.0% for 6 Months

Payment Number	Monthly Payment	Amount for Interest	Amount for Principal	Balance $1,800.00
1	$310.50	$18.00	$292.50	1,507.50
2	310.50	15.08	295.42	1,212.08
3	310.50	12.12	298.38	913.70

4

$I = Prt$

$I = (913.70)(0.12)(\frac{1}{12}) = \$9.14$

$\boxed{\$922.84}$

LESSON 8.5

Complete this problem. Check your answer in the back of the book.

1. You plan to finance the purchase of a $1,200.00 electric scooter with a 12-month loan at 12% interest with a balance of $816.04 after the fourth payment. What is the final payment amount if you pay off the loan with the fifth payment?

$I = Prt$

$= (816.04)(0.12)\left(\frac{1}{12}\right) = \$8.16$

Final Payment:

$$\begin{array}{r} 816.04 \\ +\ \ 8.16 \\ \hline \$824.20 \end{array}$$

LESSON 8.5

EXAMPLE 2

How much would the Grants in **Example 1** save by paying off the loan early?

Repayment Schedule for a $1,800 Loan at 12.0% for 6 Months				
Payment Number	Monthly Payment	Amount for Interest	Amount for Principal	Balance $1,800.00
1	$310.50	$18.00	$292.50	1,507.50
2	310.50	15.08	295.42	1,212.08
3	310.50	12.12	298.38	913.70

would have paid: paid final

$6(310.50) - (3(310.50) + 922.84)$

$= 8.66$

LESSON 8.5

Complete this problem. Check your answer in the back of the book.

2. In Problem 1, you had a 12-month loan of $1,200.00 at 12% interest to purchase an electric scooter. The balance after the fourth payment of $106.56 is $816.04. How much do you save by paying off the loan with the fifth payment?

would have paid: paid Final (from #1)

$12(106.56) - (4(106.56) + 824.20)$

$\boxed{= \$28.28 \text{ saved}}$