Name Key

Chapter 8 Study Guide

Business Mathematics

Section 8.1 – Single-Payment Loans

1. Jessie obtained a single payment loan of $3,225.00 to pay a repair bill. She agreed to repay the loan in 31 days at an exact interest rate of 11.75%. What is the maturity value of her loan?

$3225 \times .1175 \times \frac{31}{365} = \$32.18$ interest

$MV = 32.18 + 3,225 =$ **$3,257.18**

2. Joseph Henning borrowed $24,000 for new computers for his software production company. His bank granted her a single-payment loan of $24,000 for 144 days at an ordinary interest rate of 9%. What is the maturity value of his loan?

Interest: $24000(.09)\left(\frac{144}{360}\right) = 864$

$MV = 24000 + 864 =$ **$24,864**

Section 8.2 – Installment Loans

3. Linda Chevez purchased a stereo for her car. The stereo cost $279.50. Using the store's credit plan, she made a $50.00 down payment. What amount did she finance?

$279.50 - 50 =$ **$229.50 financed**

4. Amy Martin purchased living room furniture for $3,987.95. She made a down payment of 20% and financed the remaining amount using the store's installment plan. What amount did she finance?

$3,987.95 (.20) = 797.59$ down payment

$3987.95 - 797.59 =$ **$3,190.36 financed**

Section 8.3 – Simple Interest Installment Loans

5. Mark Voss obtained an installment loan of $2,460. The APR is 15% for 12 monthly payments. What is the finance charge?

Monthly Payment = $\frac{2460}{100} \times 9.03 = \$222.14$

Amount repaid = $222.14 \times 12 = \$2,665.68$

Finance charge = $2,665.68 - 2,460 = \$205.68$

6. Aurora obtained an installment loan of $6,000 on a used sailboat. She financed the purchase through the boat dealer and agreed to repay the loan in 48 monthly payments at an APR of 18%. What is the finance charge?

MP: $\frac{6000}{100} \times 2.94 = \$176.40$

ARepaid: $176.40 \times 48 = \$8,467.20$

FC: $8,467.20 - 6000 = \$2,467.20$

Section 8.4 – Installment Loans – Allocation of Monthly Payment

7. Alex borrowed $2,400 to put a new well on his country property. The interest rate is 12% for 12 months. The monthly payment is $213.12. The balance of the loan after 4 payments is $1,632.10. What is the interest for the fifth payment? What is the amount for principal with the fifth payment? What is the new principal?

$I = 1632.10(.12)(1/12) = \$16.32$

Amount for principal = $\$213.12 - 16.32 = \$196.80$

New Principal = $\$1632.10 - 196.80 = \$1,435.30$

8. Mark wants to renovate his home. The bank agrees to lend him $7,800 at 12% for 36 months. If his monthly payment is $258.96, what is the new balance after the first payment?

$7800(.12)(1/12) = \$78$ interest

Am. for principal = $258.96 - 78 = \$180.96$

new balance = $7800 - 180.96 = \$7,619.04$

Section 8.5 – Paying Off Simple Interest Installment Loans

9. Scott took out a simple interest loan of $1,800 for home repairs. The loan is for 12 months at 8% interest with a payment of $156.60. After 8 months, the balance is $615.87. He pays off the loan when the next payment is due. What is the interest? What is the final payment? How much is saved ~~by paying~~ the loan off early?

$I = 615.87(.08)(1/12) = \$4.11$ interest

Final payment $= 615.87 + 4.11 = \$619.98$ final payment

total repaid $= 12 \times 156.60 = 1,879.20$

Amount saved: $1879.2 - (8 \times 156.60) - 619.98$

$1879.20 - 1252.80 - 619.98 = \$6.42$ saved

10. Leo takes out a short-term loan of $1,800 at 12% for 6 months. The monthly payment is $310.50. The balance of the loan after 4 payments is $612.34. How much does he save by paying off the loan when the next payment is due?

~~$I = 1800(.12)(1/12) = 18$~~ $I = 612.34(.12)(1/12) = \$6.12$ interest

~~$FP = 18 + 1800 =$~~ ~~$FP = 612.34 + 310.50$~~ $FP = 612.34 + 6.12 = \$618.46$

$310.50 \times 6 = \$1863$

$1863 - 4(310.5) - 618.46$

$1863 - 1242 - 618.46 = \$2.54$ saved

Section 8.6 – Determining the APR

11. The amount of an installment loan is $7,800. The finance charge is $903.24. There are 24 monthly installments. What is the APR?

finance charge per $100 $= \$100 \times \frac{903.24}{7800} = \$11.58$

10.75%

12. Jorge is having a new furnace installed. The furnace costs $3,500.00. The bank requires a down payment of 20% and 36 monthly payments of $91.84 each. What is the APR on his loan? $3500(.20) = \$700$ $3500 - 700 = 2800$

$36 \times 91.84 = 3,306.24$ $3,306.24 - 2800 = \$506.24$ interest

$100 \times \frac{506.24}{2800} = \$18.08$ 11.25%

Student _____ Date _____ Period _____

8 Chapter Review

Loans—Fill-in-the-Blank

1. ordinary interest is based on a 360-day year.
2. Total Amount Repaid − Amount Financed = finance charge.
3. A loan you repay with several equal payments over a specified period of time is called a(n) installment loan.
4. The amount you must repay on a loan, including interest and principal is its maturity value.
5. APR = annual percentage rate.
6. A(n) repayment schedule shows the distribution of interest and principal over the life of a loan.
7. An upfront cash portion of the purchase price is a(n) down payment.
8. Final Payment = Previous Balance + Current Month's interest.
9. A loan you repay with one payment at the end of a specified period of time is a(n) single-payment loan.
10. Maturity Value = Principal + Interest Owed.
11. The term of a loan is the time for which it has been granted.
12. exact interest is based on a 365-day year.