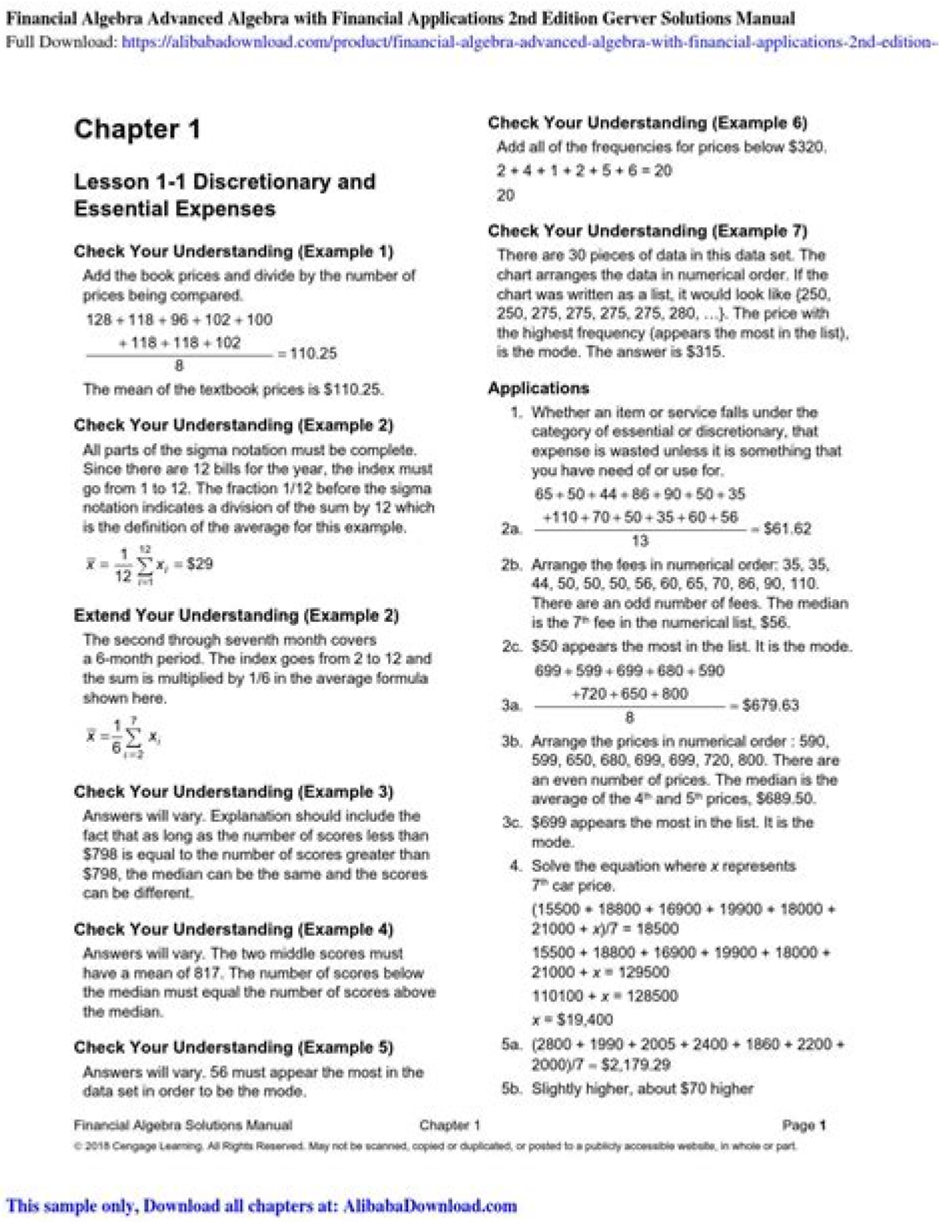
Financial Algebra Chapter 9 Answers



Financial Algebra Advanced Algebra with Financial Applications 2nd Edition Gerver Solutions Manual

Chapter 1

Lesson 1-1 Discretionary and Essential Expenses

Check Your Understanding (Example 1)

Add the book prices and divide by the number of prices being compared.

$$\frac{128+118+96+102+100+118+118+102}{8}=110.25$$

The mean of the textbook prices is $110.25.

Check Your Understanding (Example 2)

All parts of the sigma notation must be complete. Since there are 12 bills for the year, the index must go from 1 to 12. The fraction 1/12 before the sigma notation indicates a division of the sum by 12 which is the definition of the average for this example.

$$\overline{x}=\frac{1}{12}\sum_{i=1}^{12}x_i=\$29$$

Extend Your Understanding (Example 2)

The second through seventh month covers a 6-month period. The index goes from 2 to 12 and the sum is multiplied by 1/6 in the average formula shown here.

$$\overline{x}=\frac{1}{6}\sum_{i=2}^{7}x_i$$

Check Your Understanding (Example 3)

Answers will vary. Explanation should include the fact that as long as the number of scores less than $798 is equal to the number of scores greater than $798, the median can be the same and the scores can be different.

Check Your Understanding (Example 4)

Answers will vary. The two middle scores must have a mean of 817. The number of scores below the median must equal the number of scores above the median.

Check Your Understanding (Example 5)

Answers will vary. 56 must appear the most in the data set in order to be the mode.

Check Your Understanding (Example 6)

Add all of the frequencies for prices below $320.

$2+4+1+2+5+6=20$

20

Check Your Understanding (Example 7)

There are 30 pieces of data in this data set. The chart arranges the data in numerical order. If the chart was written as a list, it would look like {250, 250, 275, 275, 275, 275, 280, …}. The price with the highest frequency (appears the most in the list), is the mode. The answer is $315.

Applications

1. Whether an item or service falls under the category of essential or discretionary, that expense is wasted unless it is something that you have need of or use for.

2a. $\frac{65+50+44+86+90+50+35+110+70+50+35+60+56}{13}=\$61.62$

2b. Arrange the fees in numerical order: 35, 35, 44, 50, 50, 50, 56, 60, 65, 70, 86, 90, 110. There are an odd number of fees. The median is the 7th fee in the numerical list, $56.

2c. $50 appears the most in the list. It is the mode.

3a. $\frac{699+599+699+680+590+720+650+800}{8}=\$679.63$

3b. Arrange the prices in numerical order : 590, 599, 650, 680, 699, 699, 720, 800. There are an even number of prices. The median is the average of the 4th and 5th prices, $689.50.

3c. $699 appears the most in the list. It is the mode.

4. Solve the equation where x represents 7th car price.

$(15500+18800+16900+19900+18000+21000+x)/7=18500$

$15500+18800+16900+19900+18000+21000+x=129500$

$110100+x=128500$

$x=\$19{,}400$

5a. $(2800+1990+2005+2400+1860+2200+2000)/7=\$2{,}179.29$

5b. Slightly higher, about $70 higher

Financial algebra chapter 9 answers are essential for students seeking to master the mathematical concepts related to finance. This chapter often covers topics such as interest rates, loan calculations, investments, and budgeting, which are crucial for real-world financial decision-making. Understanding the answers to the problems in this chapter can significantly enhance a student's ability to apply algebraic principles to financial scenarios. In this article, we will delve into the key concepts covered in Chapter 9, explore common problems and their solutions, and discuss the importance of this knowledge in everyday life.

Understanding Financial Algebra

Financial algebra combines mathematical techniques with financial concepts to help individuals make informed financial decisions. The subject aims to equip students with the tools necessary to analyze financial situations, make predictions, and understand the implications of their financial choices.

Key Concepts in Chapter 9

Chapter 9 typically focuses on several core concepts, including:

1. Simple Interest: Understanding how simple interest is calculated and its application in loans and savings accounts.
2. Compound Interest: Exploring how compound interest differs from simple interest and its importance in investment growth.
3. Loan Payments: Learning how to calculate monthly payments for various types of loans, such as mortgages and car loans.
4. Budgeting: The basics of creating a budget and understanding how to allocate income effectively.
5. Investment Growth: Analyzing how investments grow over time and the factors that influence growth.

Common Problems and Solutions

To better understand the concepts covered in Chapter 9, let’s explore some common problems and their solutions.

Problem 1: Calculating Simple Interest

Question: If you invest \$1,000 in a savings account that earns a simple interest rate of 5% per year, how much interest will you earn in 3 years?

Solution:
To calculate simple interest, use the formula:
$$\text{Interest} = P \times r \times t$$
where:
- $P =$ principal amount (\$1,000)
- $r =$ annual interest rate (0.05)
- $t =$ time in years (3)

Calculating:
$$\text{Interest} = 1000 \times 0.05 \times 3 = 150$$
You will earn \$150 in interest over 3 years.

Problem 2: Understanding Compound Interest

Question: If you invest $2,000 in an account with a 4% annual interest rate compounded annually, how much will you have after 5 years?

Solution:
Use the compound interest formula:
$$ A = P(1 + r)^t $$
where:
- $A =$ amount of money accumulated after n years, including interest.
- $P =$ principal amount ($2,000)
- $r =$ annual interest rate (0.04)
- $t =$ time in years (5)

Calculating:
$$ A = 2000(1 + 0.04)^5 = 2000(1.21665) \approx 2433.30 $$
After 5 years, you will have approximately $2,433.30.

Problem 3: Monthly Loan Payments

Question: You take out a $10,000 loan at an interest rate of 6% for 3 years. What will your monthly payment be?

Solution:
To calculate monthly payments, we use the formula for monthly payments on an amortizing loan:
$$ M = \frac{P \times r(1 + r)^n}{(1 + r)^n - 1} $$
where:
- $M =$ monthly payment
- $P =$ principal amount ($10,000)
- $r =$ monthly interest rate (annual rate / 12 = 0.06/12 = 0.005)
- $n =$ number of payments (3 years × 12 months/year = 36)

Calculating:
$$ M = \frac{10000 \times 0.005(1 + 0.005)^{36}}{(1 + 0.005)^{36} - 1} \approx \frac{10000 \times 0.005 \times 1.19668}{0.19668} \approx 171.38 $$
Your monthly payment will be approximately $171.38.

The Importance of Mastering Financial Algebra

Mastering the concepts of financial algebra, especially those outlined in Chapter 9, is crucial for several reasons:

Real-World Application

Understanding financial algebra allows individuals to:

- Make informed decisions about loans and mortgages.
- Analyze the best saving and investment options.
- Create realistic budgets to manage monthly expenses effectively.
- Predict future financial outcomes based on current investments.

Building Financial Literacy

Financial literacy is an essential skill in today's world. By mastering the principles of financial algebra, students can enhance their financial literacy, allowing them to:

- Avoid common financial pitfalls.
- Develop strategies for saving for retirement or major purchases.
- Understand the implications of debt and how to manage it.

Preparation for Further Education

For students pursuing higher education in finance, business, or economics, a solid foundation in financial algebra is vital. It prepares them for more advanced topics and real-world applications they will encounter in their careers.

Conclusion

In summary, **financial algebra chapter 9 answers** serve as a critical resource for students aiming to grasp essential financial concepts. By understanding simple and compound interest, calculating loan payments, and budgeting effectively, students can apply these skills in their personal and professional lives. Mastery of these topics not only empowers individuals to make informed financial decisions but also fosters a deeper understanding of the financial world around them. Embracing financial algebra is an invaluable step towards achieving financial literacy and stability.

Frequently Asked Questions

What is the main focus of Chapter 9 in Financial Algebra?

Chapter 9 typically focuses on the concepts of loans, interest rates, and the financial implications of borrowing and repaying money.

How do you calculate the monthly payment for a loan in

Financial Algebra?

The monthly payment can be calculated using the formula: M = P[r(1+r)^n] / [(1+r)^n – 1], where M is the monthly payment, P is the loan principal, r is the monthly interest rate, and n is the number of payments.

What is the difference between simple interest and compound interest?

Simple interest is calculated only on the principal amount of a loan, while compound interest is calculated on the principal and also on the interest that accumulates over time.

What are the key factors that affect the total cost of a loan?

The key factors include the interest rate, loan term, and any fees associated with the loan, such as origination fees or closing costs.

What is an amortization schedule?

An amortization schedule is a table that outlines each payment of a loan, showing how much goes towards interest and how much goes towards reducing the principal balance.

How can financial algebra help in making informed borrowing decisions?

Financial algebra equips individuals with the tools to understand loan terms, calculate payments, and assess the overall cost of borrowing, which helps in making informed financial decisions.

Why is it important to understand the concept of loan-to-value ratio (LTV)?

Understanding the loan-to-value ratio is important because it helps assess the risk of lending; a lower LTV indicates less risk for lenders and can lead to better loan terms for borrowers.

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