# Grade 4 Math Book

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# Introduction

Welcome to the Grade 4 Math Book! This book is designed to help you master essential math skills that you will use every day. We will explore adding and subtracting four-digit numbers, multiplying larger numbers, reading time, and understanding money transactions. Each chapter includes explanations, examples, and practice problems to help you learn. Let's dive into the exciting world of math!

# Chapter 1: Adding and Subtracting Four-Digit Numbers

## 1.1 Understanding Place Value

Before we can add or subtract four-digit numbers, we need to understand place value. Each digit in a number has a specific value depending on its position:

- **Thousands**: The first digit (e.g., in 4,562, the 4 is in the thousands place and represents 4,000)
- **Hundreds**: The second digit (e.g., in 4,562, the 5 is in the hundreds place and represents 500)
- **Tens**: The third digit (e.g., in 4,562, the 6 is in the tens place and represents 60)
- **Ones**: The fourth digit (e.g., in 4,562, the 2 is in the ones place and represents 2)

## 1.2 Strategies for Addition

To add four-digit numbers, we can use the column method:

**Example**: Add 2,345 and 1,678.

```
 2345
+ 1678
------
```

Start adding from the rightmost column (the ones place):

- **Ones**: 5 + 8 = 13 (write down 3 and carry over 1)
- **Tens**: 4 + 7 + 1 (carry) = 12 (write down 2 and carry over 1)

- **Hundreds**: 3 + 6 + 1 (carry) = 10 (write down 0 and carry over 1)
- **Thousands**: 2 + 1 (carry) = 3

So, 2,345 + 1,678 = 4,023.

## 1.3 Strategies for Subtraction

For subtraction, we also use the column method:

**Example**: Subtract 2,345 from 4,678.

```
 4678
-  2345
------
```

Start from the right:

- **Ones**: 8 - 5 = 3
- **Tens**: 7 - 4 = 3
- **Hundreds**: 6 - 3 = 3
- **Thousands**: 4 - 2 = 2

So, 4,678 - 2,345 = 2,333.

## 1.4 Practice Problems

1. Add 3,456 and 2,789.
2. Subtract 5,432 from 8,910.
3. Add 1,234 and 4,567.
4. Subtract 3,210 from 6,543.

# Chapter 2: Mental Strategies for Quick Addition and Subtraction

## 2.1 Using Number Lines

A number line can help visualize addition and subtraction. For example, to add 7 + 5, start at 7 and move 5 steps to the right to land on 12.

## 2.2 Breaking Numbers Apart

Breaking numbers apart can simplify calculations. For example, to add 29 + 46, break it down:

- 29 + 40 = 69
- 69 + 6 = 75

## 2.3 Rounding Numbers

Rounding can make calculations easier. For instance, round 28 to 30 and add 30 + 50 = 80. Then adjust by subtracting the 2 you added: 80 - 2 = 78.

## 2.4 Practice Problems

1. Use a number line to find the sum of 6 + 9.
2. Break apart 52 + 37 to find the answer.
3. Round 47 + 36 to make the addition easier.

# Chapter 3: Multiplying Two- and Three-Digit Numbers

## 3.1 Understanding Multiplication

Multiplication is repeated addition. For example, 4 × 3 means adding 4 three times: 4 + 4 + 4 = 12.

## 3.2 The Area Model

The area model helps visualize multiplication. For 23 × 15, break it down:

- 20 × 10 = 200
- 20 × 5 = 100
- 3 × 10 = 30
- 3 × 5 = 15

Add them up: 200 + 100 + 30 + 15 = 345.

### 3.3 Using the Standard Algorithm

Using the standard algorithm involves stacking the numbers:

```
 23
× 15
------
```

Multiply each digit in the bottom number by each digit in the top number, remembering to add zeros for the tens place.

### 3.4 Practice Problems

1. Multiply 34 × 12.
2. Multiply 56 × 23.
3. Use the area model to find 14 × 21.

## Chapter 4: Reading Time on 12-Hour and 24-Hour Clocks

### 4.1 Understanding Clocks

A clock has two hands: the shorthand indicates hours, and the long hand indicates minutes.

### 4.2 Converting Between 12-Hour and 24-Hour Formats

- 12-hour format: 1:00 PM is 13:00 in 24-hour format.
- 24-hour format: 15:00 is 3:00 PM in 12-hour format.

### 4.3 Practice Problems

1. Convert 10:30 AM to 24-hour format.
2. What is 18:45 in 12-hour format?
3. If the time is 14:00, what time is it in 12-hour format?

## Chapter 5: Understanding Money Transactions and Simple Budgeting

### 5.1 Identifying Coins and Bills

Know the value of coins (penny, nickel, dime, quarter) and bills ($1, $5, $10, etc.).

### 5.2 Making Change

When you buy something, you may receive change. For example, if you buy a toy for $7 and give the cashier $10, you should receive $3 back.

### 5.3 Simple Budgeting

Budgeting means planning how to spend your money. If you have $20 and want to save $5, you can spend $15.

### 5.4 Practice Problems

1. If you buy a book for $12 and pay with a $20 bill, how much change do you get?
2. Create a simple budget for a week with $30.
3. If you save $2 every week, how much will you have saved after 4 weeks?

## Conclusion

Congratulations on completing the Grade 4 Math Book! You have learned valuable skills in adding and subtracting four-digit numbers, multiplying larger numbers, reading time, and understanding money transactions. Keep practicing, and remember that math is a fun and useful tool in everyday life!