

## **3rd Grade Math: Subtraction Across Zeros**

### **Lesson Objective:**

Students will:

- Understand how to perform subtraction involving zeros in the minuend (the number from which another number is subtracted).
- Learn to handle regrouping across zeros in multi-digit subtraction problems.
- Apply subtraction techniques to solve real-world problems involving zeros.

### **1. Introduction to Subtraction Across Zeros**

#### **What is Subtraction Across Zeros?**

- Subtraction across zeros happens when you need to subtract a number from another number that has zeros in it, and you need to regroup to perform the subtraction correctly.

#### **Why is it Important?**

- It helps students solve more complex subtraction problems and understand how to handle zeros in multi-digit subtraction.

### **2. Steps for Subtracting Across Zeros**

#### **Step 1: Write the Numbers Vertically**

- Align the numbers by place value (ones, tens, hundreds).

#### **Step 2: Start Subtracting from the Right**

- Begin with the ones place, and move left through tens, hundreds, and thousands.

#### **Step 3: Regroup if Needed**

- If a digit in the minuend is zero and you need to subtract from it, you must regroup from the next higher place value.

#### **Step 4: Write the Difference**

- After regrouping and subtracting each place value, write down the answer.

### 3. Example Problems

#### Example 1: Subtracting with Zeros in the Ones Place

- Problem:  $500 - 275$

- Write the numbers aligned:

diff

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```
  500
- 275
```

- Subtract the ones place:  $0 - 5$ . Regroup from the tens place ( $0 \rightarrow 10$ ), making 0 into 10.

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```
10 - 5 = 5
```

- Subtract the tens place:  $0 - 7$ . Regroup from the hundreds place ( $5 \rightarrow 4$ ), making 0 into 10.

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```
10 - 7 = 3
```

- Subtract the hundreds place:  $4 - 2 = 2$ .
- Answer: 225

### Example 2: Subtracting with Zeros in the Tens Place

- Problem:  $1,200 - 583$

- Write the numbers aligned:

diff

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1200

- 583

- Subtract the ones place:  $0 - 3$ . Regroup from the tens place ( $0 \rightarrow 10$ ), making 0 into 10.

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$10 - 3 = 7$

- Subtract the tens place:  $0 - 8$ . Regroup from the hundreds place ( $2 \rightarrow 1$ ), making 0 into 10.

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$10 - 8 = 2$

- Subtract the hundreds place:  $1 - 5$ . Regroup from the thousands place ( $1 \rightarrow 0$ ), making 1 into 11.

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$11 - 5 = 6$

- Subtract the thousands place:  $0 - 0 = 0$ .

- Answer: 617

### Example 3: Subtracting with Zeros in Multiple Places

- Problem:  $2,030 - 1,245$

- Write the numbers aligned:

```
yaml
2030
- 1245
```

- Subtract the ones place:  $0 - 5$ . Regroup from the tens place ( $3 \rightarrow 2$ ), making 0 into 10.

```
10 - 5 = 5
```

- Subtract the tens place:  $2 - 4$ . Regroup from the hundreds place ( $0 \rightarrow 10$ ), making 2 into 12.

```
12 - 4 = 8
```

- Subtract the hundreds place:  $0 - 2$ . Regroup from the thousands place ( $2 \rightarrow 1$ ), making 0 into 10.

```
10 - 2 = 8
```

- Subtract the thousands place:  $1 - 1 = 0$ .
- Answer: 785

## 4. Practice Problems

### Activity 1: Solve the Following

1.  $600 - 257 = ?$
2.  $1,500 - 743 = ?$
3.  $3,002 - 1,467 = ?$
4.  $7,030 - 2,198 = ?$

## 5. Conclusion and Review

### Key Takeaways:

- Regrouping is essential when subtracting across zeros to ensure accurate results.

- Always start from the rightmost digit and move left.
- Practice helps build confidence and accuracy in handling subtraction with zeros.

**Exit Problem:**

- Solve:  $4,020 - 1,389 = ?$