



**Unit 7**

**Name:** \_\_\_\_\_

**Lesson 7.3**

**Grade 7A**

**Date:** \_\_\_\_\_

**Subtracting mixed numbers**

**Worksheet (3)**

**Objective:** subtract mixed numbers using two different strategies:

1. Converting mixed numbers to improper fractions first.
2. Leaving the numbers as mixed numbers and regrouping if necessary.

**Method 1: Convert to Improper Fractions**

**Steps:**

1. Convert each mixed number to an improper fraction.
2. Find a common denominator.
3. Subtract the numerators.
4. Simplify the answer, converting it back to a mixed number if needed.

**Example:**

$$2\frac{3}{4} - 1\frac{1}{2}$$

1. Convert:  $11/4 - 3/2$
2. Common Denominator:  $11/4 - 6/4$
3. Subtract:  $5/4$

Simplify:  $1\frac{1}{4}$

**Your Turn:** Solve the following problems using the **Improper Fractions Method**.  
Show all your work.

1.  $3\frac{1}{2} - 1\frac{2}{3}$

2.  $5\frac{3}{8} - 2\frac{3}{4}$

3.  $4\frac{2}{5} - 1\frac{7}{10}$

### Method 2: Subtract Mixed Numbers Directly

#### Steps:

1. Subtract the whole numbers and the fractions separately.
2. If the fraction you are subtracting is larger, regroup by borrowing 1 from the whole number.
3. Combine the whole number and fraction.
4. Simplify the final answer.

#### Example:

$2\frac{3}{4} - 1\frac{1}{2}$

1. Find Common Denominator:  $2\frac{3}{4} - 1\frac{2}{4}$
2. Can we subtract?  $\frac{3}{4} - \frac{2}{4}$  is fine. No regrouping needed.
3. Subtract:  $(2-1) + (\frac{3}{4} - \frac{2}{4})$

Combine & Simplify:  $1\frac{1}{4}$

**Your Turn:** Solve the following problems using the **Mixed Numbers Method**. Show all your work.

4.  $3\frac{1}{2} - 1\frac{2}{3}$

5.  $5\frac{3}{8} - 2\frac{3}{4}$

6.  $4\frac{2}{5} - 1\frac{7}{10}$

**Word Problem:** A bag of flour weighs 312321 kilograms. If you use 145154 kilograms for baking, how many kilograms of flour are left? Solve using **both methods** to verify your answer.

Method 1 (Improper Fractions)	Method 2 (Mixed Numbers)

## How to Estimate the Difference of Mixed Numbers.

Step 1: Look at the fraction part of each mixed number.

- If the fraction is **less than**  $\frac{1}{2}$  (like  $\frac{1}{4}$ ,  $\frac{2}{5}$ ), round **down** to the nearest whole number.
- If the fraction is **greater than or equal to**  $\frac{1}{2}$  (like  $\frac{3}{5}$ ,  $\frac{5}{8}$ ), round **up** to the nearest whole number.

### Step 2: Subtract the rounded whole numbers.

The result is your **estimate**. It should be close to the exact answer.

#### Example 1:

Problem:  $5\frac{2}{7} - 3\frac{1}{3}$

##### 1. Estimate:

- $5\frac{2}{7}$ : The fraction  $\frac{2}{7}$  is less than  $\frac{1}{2}$ , so round **down** to 5.
- $3\frac{1}{3}$ : The fraction  $\frac{1}{3}$  is less than  $\frac{1}{2}$ , so round **down** to 3.
- **Estimate:**  $5 - 3 = 2$

2. **Exact Answer:** (We would calculate this to be approximately  $1\frac{20}{21}$ , which is very close to 2). ✓ The estimate makes sense.

#### Example 2 (Where Regrouping is Needed):

Problem:  $4\frac{1}{5} - 2\frac{3}{4}$

##### 1. Estimate:

- $4\frac{1}{5}$ : The fraction  $\frac{1}{5}$  is less than  $\frac{1}{2}$ , so round **down** to 4.
- $2\frac{3}{4}$ : The fraction  $\frac{3}{4}$  is greater than  $\frac{1}{2}$ , so round **up** to 3.
- **Estimate:**  $4 - 3 = 1$

2. **Exact Answer:** We calculated the exact answer as  $1\frac{9}{20}$ . Our estimate of 1 is very close! ✓

**Instructions:** For each problem, first **estimate** the difference by rounding each mixed number to the nearest whole number. Show your estimation work. Then, solve for the exact answer using any method. Finally, check if your exact answer is close to your estimate.

1. Problem:  $6\frac{7}{8} - 2\frac{1}{9}$

- Estimate:
  - $6\frac{7}{8}$  rounds to \_\_\_\_\_
  - $2\frac{1}{9}$  rounds to \_\_\_\_\_
  - Estimate: \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_
- Exact Answer: \_\_\_\_\_
- Is your exact answer close to your estimate? Yes / No

2. Problem:  $5\frac{1}{4} - 3\frac{5}{6}$

- Estimate:
  - $5\frac{1}{4}$  rounds to \_\_\_\_\_
  - $3\frac{5}{6}$  rounds to \_\_\_\_\_
  - Estimate: \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_
- Exact Answer: \_\_\_\_\_
- Is your exact answer close to your estimate? Yes / No