

# Adding and Subtracting Rational Numbers

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

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

Score: \_\_\_\_\_ / 17

This is where everything you have learned about fractions, decimals, and integer signs comes together! To add or subtract rational numbers, the first step is to get the numbers into a form you can combine—find the LCD for fractions, or line up decimal points for decimals. When subtraction gets confusing, remember the trick: rewrite it as *adding the opposite*. Apply the sign rules carefully and you will get both the correct value *and* the correct sign every time.

## Key Concepts & Quick Review

**Same signs:** add absolute values; keep common sign. **Example:**  $-\frac{3}{4} + (-\frac{1}{4}) = -\frac{4}{4} = -1$

**Different signs:** subtract absolute values; keep sign of larger. **Subtraction:**  $a - b = a + (-b)$  (add the opposite) **LCD first** when denominators differ.

### Examples

① Find  $-\frac{3}{4} + (-\frac{1}{3})$ .

**Think It Through:** Both numbers are negative, so they have the same sign. That means we add their absolute values and keep the negative sign at the end. To add  $\frac{3}{4}$  and  $\frac{1}{3}$ , first use the LCD 12. Rewrite them as  $\frac{9}{12}$  and  $\frac{4}{12}$ , then add to get  $\frac{13}{12}$ . Finally put the negative back:  $-\frac{13}{12} = -1\frac{1}{12}$ . Same signs means the movement goes in the same direction on the number line.

**Answer:**  $-1\frac{1}{12}$

② The temperature changed  $-2.5^\circ\text{F}$  in the morning and  $-1.75^\circ\text{F}$  in the afternoon. What was the total temperature change for the day?

**Think It Through:** Since both changes are negative, add the absolute values:  $2.5 + 1.75 = 4.25$ . Then keep the negative sign because both changes were drops. So the total change is  $-4.25^\circ\text{F}$ . In words, the temperature fell by  $4.25^\circ\text{F}$  during the day. A negative result here makes sense because every change in the problem was a drop.

**Answer:**  $-4.25^\circ\text{F}$

### Practice Problems

Add or subtract each rational number expression. Simplify your answer.

1.  $-\frac{3}{4} + \frac{1}{4} =$  \_\_\_\_\_

3.  $-\frac{7}{8} - \frac{1}{8} =$  \_\_\_\_\_

2.  $\frac{5}{6} + (-\frac{1}{6}) =$  \_\_\_\_\_

4.  $-\frac{2}{3} + \frac{1}{2} =$  \_\_\_\_\_



5.  $\frac{3}{4} - \left(-\frac{1}{3}\right) =$  \_\_\_\_\_

6.  $-\frac{5}{6} + \frac{3}{4} =$  \_\_\_\_\_

7.  $-0.8 + (-0.5) =$  \_\_\_\_\_

8.  $-2.75 + 1.5 =$  \_\_\_\_\_

9.  $3.6 - (-1.4) =$  \_\_\_\_\_

10.  $-4.2 - (-3.7) =$  \_\_\_\_\_

11.  $-\frac{3}{5} + \left(-\frac{7}{10}\right) =$  \_\_\_\_\_

12.  $1\frac{1}{4} + \left(-\frac{3}{4}\right) =$  \_\_\_\_\_

13.  $-2\frac{1}{3} - \frac{2}{3} =$  \_\_\_\_\_

14.  $-1\frac{5}{6} + \frac{5}{6} =$  \_\_\_\_\_

15.  $\frac{7}{8} - \left(-\frac{3}{8}\right) - \frac{5}{4} =$  \_\_\_\_\_

### Study Tips

-  When mixing fractions and decimals, convert everything to the same form before adding or subtracting.
-  For subtraction, always rewrite as addition of the opposite *first*:  $-\frac{5}{6} - \left(-\frac{1}{4}\right) = -\frac{5}{6} + \frac{1}{4}$ .
-  Watch for zero pairs:  $-\frac{3}{4} + \frac{3}{4} = 0$ . Spotting them early simplifies multi-step problems dramatically.

### Word Problems

16. A mountain climber's elevation changes by  $-\frac{7}{8}$  km in the morning (descending into a valley) and  $+\frac{5}{6}$  km in the afternoon (ascending). Find the net elevation change for the day. Did the climber end up higher or lower than the starting point, and by how many kilometers? \_\_\_\_\_

17. A scientist records these temperature changes over five days:  $-2\frac{1}{4}$  °F,  $+1.75$  °F,  $-\frac{3}{8}$  °F,  $+0.5$  °F, and  $-1\frac{1}{8}$  °F. Convert all values to fractions with a common denominator and find the total temperature change. Then find the average daily change by dividing the total by 5. \_\_\_\_\_



## Answer Keys

- 1)  $-\frac{1}{2}$
- 2)  $\frac{2}{3}$
- 3) -1
- 4)  $-\frac{1}{6}$
- 5)  $\frac{13}{12}$
- 6)  $-\frac{1}{12}$
- 7)  $-\frac{13}{10}$
- 8)  $-\frac{5}{4}$
- 9) 5

- 10)  $-\frac{1}{2}$
- 11)  $-\frac{13}{10}$
- 12)  $\frac{1}{2}$
- 13) -3
- 14) -1
- 15) 0
- 16)  $-\frac{1}{24}$  km lower
- 17) Total  $-1.5^{\circ}\text{F}$ ; average  $-0.3^{\circ}\text{F}$  per day

### Step-by-Step Explanations

*Tutoring notes not found for this topic.*



# Want Even More Practice?

Check Out Our Other Maryland MCAP Test Books!



## Maryland MCAP Grade 7 Math Preparation Bundle

18 full-length practice tests across three books (5 + 6 + 7)

No repeated questions—maximum practice value!



**18 Tests!**  
**3 Books**  
**One Bundle**

**Important:** All our test books contain **unique, completely different tests** from each other! Each book offers fresh practice questions—no repeats!

### 5 Practice Tests

- ✓ 5 complete practice tests with detailed explanations
- ✓ Perfect foundation for MCAP test preparation
- ✓ Builds confidence and test-taking skills
- ✓ High-quality questions aligned with state standards

**Start your practice journey!**

### 6 Practice Tests

- ✓ 6 complete practice tests with detailed explanations
- ✓ **Unique tests**—different from the 5 tests book
- ✓ Perfect for more practice after mastering 5 tests
- ✓ Builds even more confidence and test-taking skills
- ✓ Same high-quality questions aligned with standards

**Take your practice to the next level!**

### 7 Practice Tests

- ✓ 7 complete practice tests for maximum preparation
- ✓ **Unique tests**—different from 5 and 6 tests books
- ✓ The most comprehensive practice for Grade 7
- ✓ Ideal for students aiming for top scores
- ✓ Extensive practice builds mastery and confidence

**Go all the way with comprehensive practice!**