

Adding and Subtracting Fractions

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| Reporting Category | Computation and Estimation |
| Topic | Addition and subtraction of proper fractions with like denominators |
| Primary SOL | 3.7 The student will add and subtract proper fractions having like denominators of 12 or less. |
| Related SOL | 3.3a, b, 3.4 |

Materials

- Fraction Strips (attached)
- Fraction Chart (attached)
- Four-in-a-Row Game Board (attached)
- Adding and Subtracting Fractions Recording Sheet (attached)
- Counters of two colors
- Adding and Subtracting Fractions Exit Cards (attached)

Vocabulary

fraction, whole number, proper fraction, numerator, denominator

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Tell students they will play a Four-in-a-Row game. Group students into pairs, and give each pair a set of Fraction Strips, a Fraction Chart, a Four-in-a-Row Game Board, and two different colored counters to be used as board markers. Also, give each student a Adding and Subtracting Fractions Recording Sheet.
2. Let each student pair decide who goes first. Player 1 chooses two fractions on the Fraction Chart that can be added or subtracted to get one of the answers on the game board. Player 1 must demonstrate the problem with the fraction strips (or with another method), after which he or she covers the answer with a marker. Once an answer on the game board has been covered, it cannot be used again. Have students record their plays on the recording sheet.
3. Player 2 now takes a turn. Play continues until someone covers four fractions in a row on the game board—horizontally, vertically, or diagonally.
4. After the game, hold a class discussion about the strategies the students used, pointing out the mathematics involved.

Assessment

- **Questions**
 - What is important to remember when adding and subtracting fractions with like denominators?
 - What is a fraction called when the numerator and denominator are the same number?
- **Journal/Writing Prompts**
 - Explain in your own words the steps to adding fractions with like denominators.

- Explain in your own words the steps to subtracting fractions with like denominators.
- **Other**
 - Have students create and solve word problems in which the solution must be found by either adding or subtracting fractions with like denominators.
 - Have students create and illustrate a fraction story involving something in their everyday life.

Extensions and Connections (for all students)

- Have students complete the Exit Cards to check for understanding.

Strategies for Differentiation

- Have students use fraction strips and fraction circles to solve word problems.

Fraction Strips

| |
|----------------|
| 1 Whole |
|----------------|

| | |
|---------------|---------------|
| $\frac{1}{2}$ | $\frac{1}{2}$ |
|---------------|---------------|

| | | |
|---------------|---------------|---------------|
| $\frac{1}{3}$ | $\frac{1}{3}$ | $\frac{1}{3}$ |
|---------------|---------------|---------------|

| | | | |
|---------------|---------------|---------------|---------------|
| $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |
|---------------|---------------|---------------|---------------|

| | | | | |
|---------------|---------------|---------------|---------------|---------------|
| $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ |
|---------------|---------------|---------------|---------------|---------------|

| | | | | | |
|---------------|---------------|---------------|---------------|---------------|---------------|
| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ |
|---------------|---------------|---------------|---------------|---------------|---------------|

| | | | | | | | |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| $\frac{1}{8}$ |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|

| | | | | | | | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| $\frac{1}{10}$ |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|

| | | | | | | | | | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| $\frac{1}{12}$ |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|

Fraction Chart

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

Four-in-a-Row Game Board

| | | | |
|----------------|----------------|---------------|---------------|
| $\frac{1}{4}$ | $\frac{3}{8}$ | $\frac{2}{3}$ | $\frac{1}{2}$ |
| $\frac{3}{4}$ | $\frac{1}{12}$ | $\frac{7}{8}$ | $\frac{1}{8}$ |
| $\frac{5}{8}$ | $\frac{4}{12}$ | $\frac{4}{8}$ | $\frac{1}{3}$ |
| $\frac{9}{10}$ | $\frac{6}{8}$ | $\frac{2}{4}$ | 0 |

Adding and Subtracting Fractions Recording Sheet

Name: _____ Date: _____

$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$$

$$\frac{\square}{\square} - \frac{\square}{\square} = \frac{\square}{\square}$$

Adding and Subtracting Fractions: Exit Cards

Name: _____ Date: _____

$$\frac{3}{10} + \frac{5}{10} =$$

$$\frac{8}{12} - \frac{4}{12} =$$

$$\frac{2}{6} + \frac{1}{6} =$$

$$\frac{5}{8} - \frac{3}{8} =$$

$$\frac{2}{4} + \frac{1}{4} =$$

$$\frac{5}{6} - \frac{1}{6} =$$

$$\frac{5}{12} + \frac{5}{12} =$$