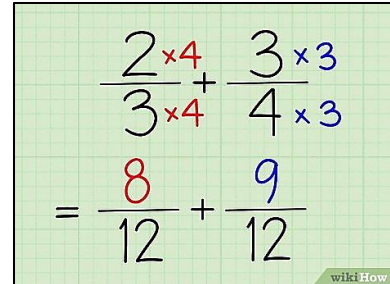


# Tic-tac-toe: Adding and Subtracting Fractions

**Theme:** Tic-tac-toe: Adding & Subtracting Fractions

**Curriculum Area:** Math

Understanding and knowing how to use equivalent fractions to add and subtract fractions is essential for students. This is because when students add and subtract fractions with unlike denominators like mixed numbers, it can be challenging to find the solution to the presented problem. Having students recognize the strategy of using equivalent fractions will allow students to use a simple equation or format to lead to a solution. Let's gather our knowledge and begin learning.


$$\frac{2}{3} + \frac{3}{4} = \frac{8}{12} + \frac{9}{12}$$

**Ages of Children:** 5<sup>th</sup> grade (9-11 years of age)

**Materials Needed:**

- Pencil
- White Printer Paper (8x11): so, students can show their work.
- Red marker or pen
- Tic-Tac-Toe Worksheet that is attached to this lesson activity.

**Developmental Objectives/Domains:** By participating in this activity, students will:

1. Learn how to use equivalent fractions to add and subtract fractions with unlike denominators.
2. Develop a new strategy that can be used for both unlike denominators and mixed numbers.
3. Understand equivalent fractions are not only used to help students add and subtract fractions with unlike denominators but to help students simplify fractions too.
4. Enhance cognitive development by gaining a clear example of how equivalent fractions are useful in adding and subtracting fractions.

**Procedure:**

1. Present students with a problem based on adding and subtracting fractions and discuss ways we could solve the problem when it has unlike denominators.
2. Explain how to use the equivalent method when mixed number fraction is present in the problem.
3. Introduce students on how to add and subtract fractions by using the equivalent method.
4. Students should watch this video to view what has been taught:  
<https://youtu.be/2Is5ZQbyi4s>
5. Print out or draw the tic-tac-toe that is given on the worksheet.
6. Show example of how to play the Tic-tac-toe game with fractions as a class.

7. Have students play the game Tic-tac-toe adding and subtracting fractions edition including mixed number fractions.
8. After that come together as a class to have students discuss what they have learned from playing this activity.

**References:**

- [Key Stage 2 Maths](#)
- <https://www.wikihow.com/images/thumb/7/71/Add-and-Subtract-Fractions-Step-7-Version-3.jpg/v4-460px-Add-and-Subtract-Fractions-Step-7-Version-3.jpg>

## Tic-tac-toe: Adding and Subtracting Fractions

**Directions:** There should be at least **two players** to this game. **Player A** will be marking on the sheet as **X** and **Player B** will mark on the sheet as **O**. The goal of this game is to add and subtract mixed number fractions and fractions with **unlike denominators**. To find the **common denominator students** must use the **equivalent method** ( $a/b + c/d = (ad + bc)/bd$ ). Then for the mixed number fractions students must turn the mixed number fraction into an [improper fraction](#) and then find its common denominator. Students will be taking turns to solve each problem and if the person solving the problem doesn't get the answer correct then the next person can try to solve the problem. If Player A gets it correct, then they can put an X over the answer on the Tic-tac-toe sheet provided. Same goes for Player B. **Space** is provided below the problems so that students can **show their work**.

\*Answers provided on the last page for the person not playing to check.

$\frac{3}{6} = \frac{1}{2}$	2	$\frac{5}{6}$
$\frac{11}{15}$	$\frac{19}{24}$	$\frac{1}{10}$
$\frac{79}{20} = 3\frac{19}{20}$	$\frac{17}{35}$	$\frac{31}{45}$

1.  $\frac{1}{3} + \frac{2}{5} =$

2.  $\frac{4}{5} - \frac{1}{9} =$

3.  $\frac{1}{8} + \frac{2}{3} =$

$$4. \frac{1}{5} + \frac{2}{7} =$$

$$5. \frac{1}{3} + \frac{1}{6} =$$

$$6. \frac{9}{10} - \frac{4}{5} =$$

$$7. 2\frac{1}{5} + 1\frac{3}{4} =$$

$$8. 3\frac{1}{2} - 1\frac{1}{2} =$$

$$9. 3\frac{1}{2} - 2\frac{2}{3} =$$

## Answers Key to Problems

$$1. \frac{1}{3} \times \frac{5}{5} + \frac{2}{5} \times \frac{3}{3} = \frac{5}{15} + \frac{6}{15} = \frac{11}{15}$$

$$2. \frac{4}{5} \times \frac{9}{9} - \frac{1}{9} \times \frac{5}{5} = \frac{36}{45} - \frac{5}{45} = \frac{31}{45}$$

$$3. \frac{1}{8} \times \frac{3}{3} + \frac{2}{3} \times \frac{8}{8} = \frac{3}{24} + \frac{16}{24} = \frac{19}{24}$$

$$4. \frac{1}{5} \times \frac{7}{7} + \frac{2}{7} \times \frac{5}{5} = \frac{7}{35} + \frac{10}{35} = \frac{17}{35}$$

$$5. \frac{1}{3} \times \frac{2}{2} + \frac{1}{6} = \frac{2}{6} + \frac{1}{6} = \frac{3}{6} \div \frac{3}{3} = \frac{1}{2}$$

$$6. \frac{9}{10} - \frac{4}{5} \times \frac{2}{2} = \frac{9}{10} - \frac{8}{10} = \frac{1}{10}$$

$$7. 2\frac{1}{5} = \frac{11}{5} \quad 1\frac{3}{4} = \frac{7}{4} \quad \frac{11}{5} \times \frac{4}{4} + \frac{7}{4} \times \frac{5}{5} = \frac{44}{20} + \frac{35}{20} = \frac{79}{20} = 3\frac{19}{20}$$

$$8. 3\frac{1}{2} = \frac{7}{2} \quad 1\frac{1}{2} = \frac{3}{2} \quad \frac{7}{2} - \frac{3}{2} = \frac{4}{2} = 2$$

$$9. 3\frac{1}{2} = \frac{7}{2} \quad 2\frac{2}{3} = \frac{8}{3} \quad \frac{7}{2} \times \frac{3}{3} - \frac{8}{3} \times \frac{2}{2} = \frac{21}{6} - \frac{16}{6} = \frac{5}{6}$$