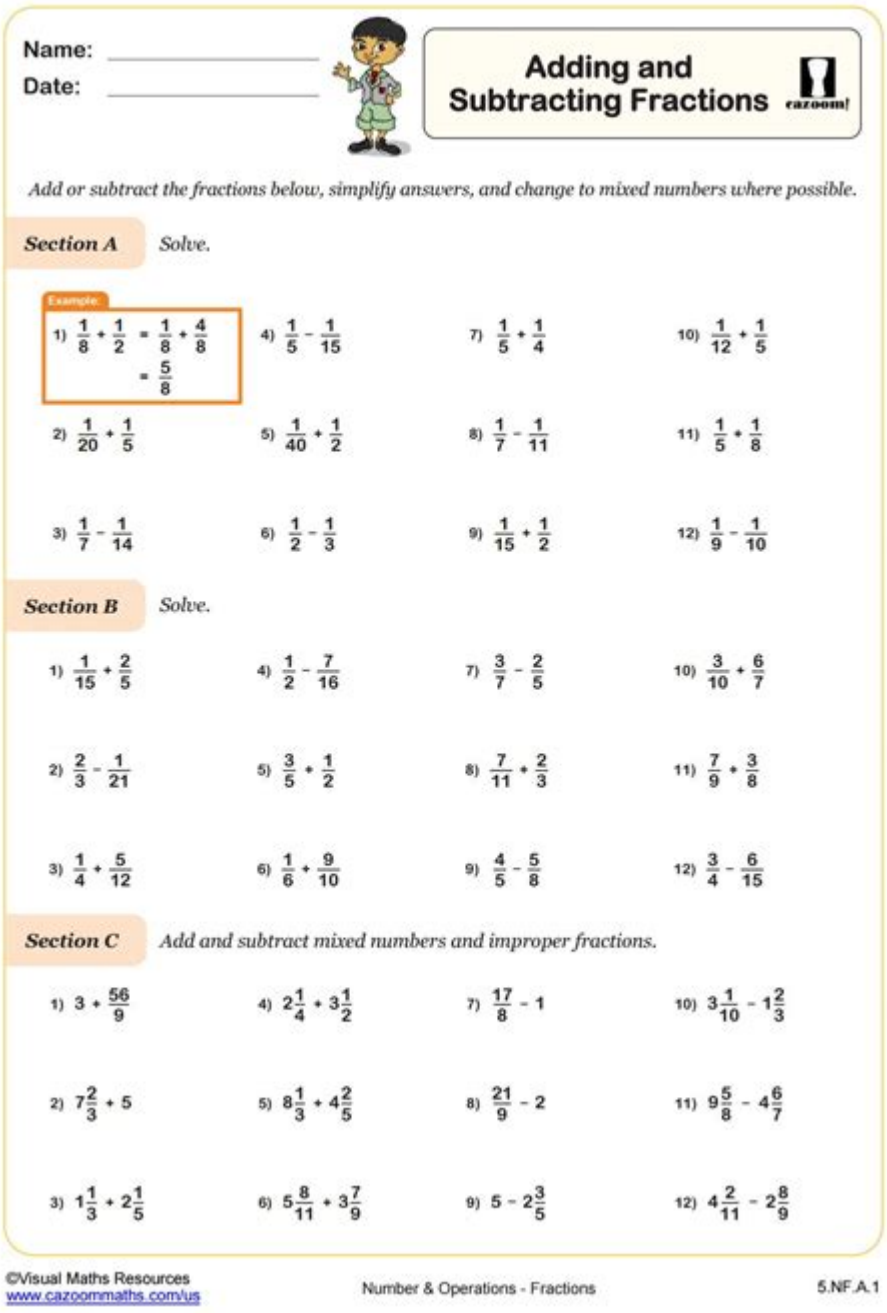
Math Adding And Subtracting Fractions



Name: _____

Date: _____

Adding and Subtracting Fractions

cazoom!

Add or subtract the fractions below, simplify answers, and change to mixed numbers where possible.

Section A *Solve.*

Example:

1) $\frac{1}{8} + \frac{1}{2} = \frac{1}{8} + \frac{4}{8} = \frac{5}{8}$

2) $\frac{1}{20} + \frac{1}{5}$

3) $\frac{1}{7} - \frac{1}{14}$

4) $\frac{1}{5} - \frac{1}{15}$

5) $\frac{1}{40} + \frac{1}{2}$

6) $\frac{1}{2} - \frac{1}{3}$

7) $\frac{1}{5} + \frac{1}{4}$

8) $\frac{1}{7} - \frac{1}{11}$

9) $\frac{1}{15} + \frac{1}{2}$

10) $\frac{1}{12} + \frac{1}{5}$

11) $\frac{1}{5} + \frac{1}{8}$

12) $\frac{1}{9} - \frac{1}{10}$

Section B *Solve.*

1) $\frac{1}{15} + \frac{2}{5}$

2) $\frac{2}{3} - \frac{1}{21}$

3) $\frac{1}{4} + \frac{5}{12}$

4) $\frac{1}{2} - \frac{7}{16}$

5) $\frac{3}{5} + \frac{1}{2}$

6) $\frac{1}{6} + \frac{9}{10}$

7) $\frac{3}{7} - \frac{2}{5}$

8) $\frac{7}{11} + \frac{2}{3}$

9) $\frac{4}{5} - \frac{5}{8}$

10) $\frac{3}{10} + \frac{6}{7}$

11) $\frac{7}{9} + \frac{3}{8}$

12) $\frac{3}{4} - \frac{6}{15}$

Section C *Add and subtract mixed numbers and improper fractions.*

1) $3 + \frac{56}{9}$

2) $7\frac{2}{3} + 5$

3) $1\frac{1}{3} + 2\frac{1}{5}$

4) $2\frac{1}{4} + 3\frac{1}{2}$

5) $8\frac{1}{3} + 4\frac{2}{5}$

6) $5\frac{8}{11} + 3\frac{7}{9}$

7) $\frac{17}{8} - 1$

8) $\frac{21}{9} - 2$

9) $5 - 2\frac{3}{5}$

10) $3\frac{1}{10} - 1\frac{2}{3}$

11) $9\frac{5}{8} - 4\frac{6}{7}$

12) $4\frac{2}{11} - 2\frac{8}{9}$

Math adding and subtracting fractions is a fundamental skill in mathematics that often confuses students and learners alike. Understanding how to add and subtract fractions is crucial not only in academic settings but also in real-life applications, from cooking to budgeting. This article will provide a comprehensive overview of the concepts, techniques, and examples of adding and subtracting fractions.

Understanding Fractions

Before delving into the procedures for adding and subtracting fractions, it's essential to understand

what fractions are and their components.

Components of a Fraction

A fraction consists of two main parts:

- Numerator: The top part of the fraction that represents how many parts are being considered.
- Denominator: The bottom part of the fraction that indicates the total number of equal parts.

For example, in the fraction $\frac{3}{4}$, 3 is the numerator, and 4 is the denominator.

Types of Fractions

Fractions can be classified into several categories:

- Proper Fractions: The numerator is less than the denominator (e.g., $\frac{2}{5}$).
- Improper Fractions: The numerator is greater than or equal to the denominator (e.g., $\frac{5}{3}$).
- Mixed Numbers: A combination of a whole number and a proper fraction (e.g., 1 $\frac{2}{3}$).

Adding Fractions

Adding fractions involves combining two or more fractions into a single fraction. The process varies depending on whether the fractions have the same denominator or different denominators.

Adding Fractions with the Same Denominator

When fractions have the same denominator, adding them is straightforward:

1. Keep the denominator the same.
2. Add the numerators.

Example:
To add $\frac{2}{5} + \frac{1}{5}$:

- Keep the denominator: 5
- Add the numerators: $2 + 1 = 3$

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

Adding Fractions with Different Denominators

When fractions have different denominators, follow these steps:

1. Find a common denominator: This is usually the least common multiple (LCM) of the denominators.
2. Convert each fraction to an equivalent fraction with the common denominator.
3. Add the numerators.
4. Simplify the resulting fraction if necessary.

Example:
To add $\frac{1}{4} + \frac{1}{6}$:

1. The denominators are 4 and 6. The LCM of 4 and 6 is 12.
2. Convert each fraction:
- $\frac{1}{4} = \frac{3}{12}$ (multiply numerator and denominator by 3)
- $\frac{1}{6} = \frac{2}{12}$ (multiply numerator and denominator by 2)
3. Add the numerators: $3 + 2 = 5$.
4. The denominator remains 12, so $\frac{3}{12} + \frac{2}{12} = \frac{5}{12}$.

Subtracting Fractions

Subtracting fractions follows a similar approach as adding them, with slight variations based on the denominators.

Subtracting Fractions with the Same Denominator

When fractions have the same denominator, the process is simple:

1. Keep the denominator the same.
2. Subtract the numerators.

Example:
To subtract $\frac{3}{8} - \frac{1}{8}$:

- Keep the denominator: 8
- Subtract the numerators: $3 - 1 = 2$

Thus, $\frac{3}{8} - \frac{1}{8} = \frac{2}{8}$, which simplifies to $\frac{1}{4}$.

Subtracting Fractions with Different Denominators

The steps for subtracting fractions with different denominators are as follows:

1. Find a common denominator.
2. Convert each fraction to an equivalent fraction with the common denominator.
3. Subtract the numerators.
4. Simplify the resulting fraction if necessary.

Example:
To subtract $\frac{2}{3} - \frac{1}{4}$:

1. The denominators are 3 and 4. The LCM of 3 and 4 is 12.
2. Convert each fraction:
- $\frac{2}{3} = \frac{8}{12}$ (multiply numerator and denominator by 4)
- $\frac{1}{4} = \frac{3}{12}$ (multiply numerator and denominator by 3)
3. Subtract the numerators: $8 - 3 = 5$.
4. The denominator remains 12, so $\frac{2}{3} - \frac{1}{4} = \frac{8}{12} - \frac{3}{12} = \frac{5}{12}$.

Common Mistakes to Avoid

When adding and subtracting fractions, learners often make several common mistakes. Here are some to watch out for:

- Not finding a common denominator: Always ensure you have a common denominator before adding or subtracting fractions with different denominators.
- Incorrectly simplifying fractions: After performing operations, ensure the resulting fraction is in its simplest form. This may involve dividing both the numerator and denominator by their greatest common divisor (GCD).
- Mixing up addition and subtraction: Take care when performing operations; double-check whether you are adding or subtracting fractions.

Practical Applications of Adding and Subtracting Fractions

Understanding how to add and subtract fractions is not just an academic exercise; it has real-world applications:

- Cooking: Recipes often require adding or subtracting fractions of cups, teaspoons, or other measurements.
- Budgeting: Individuals may need to sum or subtract fractions of their income or expenses to get a clear picture of their finances.
- Construction: Measurements in building often involve fractions, requiring workers to calculate total lengths, widths, or areas.

Conclusion

In conclusion, mastering **math adding and subtracting fractions** is essential for both academic success and practical everyday tasks. By understanding the components of fractions, knowing how to find common denominators, and practicing the addition and subtraction processes, anyone can become proficient in working with fractions. Regular practice and awareness of common pitfalls will further enhance your skills, making you more confident in handling fractions in various situations.

Frequently Asked Questions

What is the first step in adding fractions with different denominators?

The first step is to find a common denominator for the fractions.

How do you find the common denominator for 1/4 and 1/6?

The least common multiple of 4 and 6 is 12, so the common denominator is 12.

What is 1/3 + 1/4?

First, find a common denominator (12). Then, convert the fractions: 1/3 becomes 4/12 and 1/4 becomes 3/12. Adding them gives you 7/12.

Can you subtract fractions with different denominators directly?

No, you must first convert them to have a common denominator before subtracting.

How do you subtract 3/5 - 1/3?

Find a common denominator (15). Convert: 3/5 becomes 9/15 and 1/3 becomes 5/15. Then subtract: 9/15 - 5/15 = 4/15.

What is the result of adding 2/8 and 3/8?

Since the denominators are the same, simply add the numerators: 2 + 3 = 5. The result is 5/8.

What should you do if the result of adding or subtracting fractions can be simplified?

Always simplify the fraction to its lowest terms by dividing the numerator and denominator by their greatest common divisor.

Is 1/2 + 1/3 greater than, less than, or equal to 1?

1/2 + 1/3 equals 5/6, which is less than 1.

Math Adding And Subtracting Fractions

Matematica e Fisica Online - YouMath
YouMath, portale di Matematica online: lezioni, esercizi risolti, formulari, problemi di Matematica e tanto altro ancora!

Bibm@th, la bibliothèque des mathématiques²
Le mathématicien autrichien Hans Hahn étudie à l'université de Vienne où il est très ami avec 3 autres futurs grands scientifiques, Paul Ehrenfest, Heinrich Tietze et Herglotz. ... Afficher sa biographie

Testy matematyczne
Testy dla uczniów i nie tylko. Sprawdź swoją wiedzę matematyczną.

Exercices corrigés - Calcul exact d'intégrales
Déterminer toutes les primitives des fonctions suivantes, sur un intervalle bien choisi : $$\begin {array} {lll} \displaystyle f_1 (x)=5x^3-3x+7&\displaystyle f_2 (x ...

Ressources pour la math sup - MPSI - MPI - Bibm@th.net
Ressources de mathématiquesLe concours Enac pilote de ligne recrute après la Math Sup. Voici des annales de ce concours, qui est un QCM. Toujours très utile pour réviser le programme!

Exercices corrigés - Déterminants
Ressources de mathématiquesOn considère les matrices suivantes : T = (1 0 0 3 1 0 0 − 2 1) et A = (1 − 10 11 − 3 6 5 − 6 12 8). Déterminer la matrice B = TA B=TA et calculer le déterminant de B B . Déduire de la question précédente le déterminant de A A . Déduire de la question précédente le déterminant de C = (3 5 55 − 9 − 3 25 − 18 − 6 40). C=⎛⎝⎜3555−9− ...

Exercices corrigés - Intégrales curvilignes
On pourra d'abord montrer que la forme différentielle est fermée, et utiliser le théorème de Poincaré. Pour la recherche des primitives, on résoudra successivement les équations aux dérivées partielles.

Exercices corrigés - Intégrales multiples
On commence par écrire le domaine d'une meilleure façon. On a en effet :

Exercices corrigés -Équations différentielles linéaires du premier ...
Exercices corrigés - Équations différentielles linéaires du premier ordre - résolution, applications

Exercices corrigés - Exercices - Analyse
Analyse complexe Formules intégrales de Cauchy - Inégalités de Cauchy - Applications Conditions de Cauchy-Riemann Grands théorèmes : principe du maximum, application ouverte,... Théorème des résidus - calcul d'intégrales Singularités des fonctions holomorphes - fonctions méromorphes Suites,

séries, intégrales et produits infinis de fonctions holomorphes et …

Matematica e Fisica Online - YouMath
YouMath, portale di Matematica online: lezioni, esercizi risolti, formulari, problemi di Matematica e tanto altro ancora!

Bibm@th, la bibliothèque des mathématiques²
Le mathématicien autrichien Hans Hahn étudie à l'université de Vienne où il est très ami avec 3 autres futurs grands scientifiques, Paul Ehrenfest, Heinrich Tietze et Herglotz. ... Afficher sa …

Testy matematyczne
Testy dla uczniów i nie tylko. Sprawdź swoją wiedzę matematyczną.

Exercices corrigés - Calcul exact d'intégrales
Déterminer toutes les primitives des fonctions suivantes, sur un intervalle bien choisi : $$\begin {array} {lll} \displaystyle f_1 (x)=5x^3-3x+7&\displaystyle f_2 (x …

Ressources pour la math sup - MPSI - MPI - Bibm@th.net
Ressources de mathématiquesLe concours Enac pilote de ligne recrute après la Math Sup. Voici des annales de ce concours, qui est un QCM. Toujours très utile pour réviser le programme!

Exercices corrigés - Déterminants
Ressources de mathématiquesOn considère les matrices suivantes : T = (1 0 0 3 1 0 0 − 2 1) et A = (1 − 10 11 − 3 6 5 − 6 12 8). Déterminer la matrice B = TA B=TA et calculer le déterminant …

Exercices corrigés - Intégrales curvilignes
On pourra d'abord montrer que la forme différentielle est fermée, et utiliser le théorème de Poincaré. Pour la recherche des primitives, on résoudra successivement les équations aux …

Exercices corrigés - Intégrales multiples
On commence par écrire le domaine d'une meilleure façon. On a en effet :

Exercices corrigés -Équations différentielles linéaires du premier …
Exercices corrigés - Équations différentielles linéaires du premier ordre - résolution, applications

Exercices corrigés - Exercices - Analyse
Analyse complexe Formules intégrales de Cauchy - Inégalités de Cauchy - Applications Conditions de Cauchy-Riemann Grands théorèmes : principe du maximum, application …

Master the art of math adding and subtracting fractions with our step-by-step guide. Learn more to simplify your calculations and boost your confidence in math!

Back to Home