

Adding & Subtracting Fractions

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Mathematics 9 Adding & Subtracting Fractions

A. Equivalent Fractions

Equivalent fractions are fractions which have the same denominator. These are particularly useful when you are asked to compare fractions.

Put the original fractions in order from **smallest to largest**.

$$\begin{array}{ccccc} \frac{1 \times 12}{2 \times 12} & \frac{3 \times 3}{8 \times 3} & \frac{2 \times 8}{3 \times 8} & \frac{5 \times 4}{6 \times 4} & \frac{3 \times 6}{4 \times 6} \\ \frac{12}{24} & \frac{9}{24} & \frac{16}{24} & \frac{20}{24} & \frac{18}{24} \end{array}$$

$$\frac{3}{8}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$$

B. Adding and Subtracting with the Same Denominator

When adding and subtracting you must have the same denominator.

$$\frac{4}{9} + \frac{2}{9} = \frac{6}{9} \div 3 = \frac{2}{3}$$

C. Adding & Subtracting with Different Denominators

If the denominators are not the same you will need to find a common denominator and create equivalent fractions before adding or subtracting.

$$\frac{2 \times 5}{3 \times 5} - \frac{1 \times 3}{5 \times 3} = \frac{10}{15} - \frac{3}{15} = \frac{7}{15}$$

D. Adding & Subtracting with Mixed Numbers

It is generally easiest if you change the Mixed Numbers into Improper Fractions before trying to add or subtract.

$$3\frac{1}{2} - 1\frac{3}{5}$$

$\begin{array}{r} 2 \\ 35 \\ -16 \\ \hline 19 \end{array}$

$$\frac{7 \times 5}{2 \times 5} - \frac{8 \times 2}{5 \times 2} = \frac{35}{10} - \frac{16}{10} = \frac{19}{10} \text{ or } 1\frac{9}{10}$$

E. Practice Questions

1) $\frac{1 \times 3}{2 \times 3} + \frac{1}{6}$

$$\frac{3}{6} + \frac{1}{6} = \frac{4}{6} = \frac{2}{3}$$

2) $\frac{5 \times 2}{8 \times 2} - \frac{1 \times 3}{3 \times 3}$

$$\frac{15}{24} - \frac{8}{24} = \frac{7}{24}$$

3) $2\frac{1}{4} + 1\frac{1}{6}$

$$\frac{9 \times 3}{4 \times 3} + \frac{7 \times 2}{6 \times 2}$$

$$\frac{27}{12} + \frac{14}{12} = \frac{41}{12}$$

$\begin{array}{r} 27 \\ +14 \\ \hline 41 \end{array}$

4) $3\frac{1}{3} - 1\frac{4}{5}$

$$\frac{10 \times 5}{3 \times 5} - \frac{9 \times 3}{5 \times 3}$$

$$\frac{50}{15} - \frac{27}{15} = \frac{23}{15}$$

$\begin{array}{r} 4 \\ 50 \\ -27 \\ \hline 23 \end{array}$

Assignment : Adding & Subtracting Fractions Assignment

Name: _____

Adding & Subtracting Fractions

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

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

3. $\frac{1}{2} + \frac{4}{9}$

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

5. $\frac{6}{7} - \frac{1}{28}$

6. $\frac{7}{8} + \frac{2}{3}$

7. $\frac{5}{6} - \frac{3}{8}$

8. $\frac{6}{10} - \frac{3}{9}$

9. $2\frac{1}{3} - 2\frac{1}{4}$

10. $2\frac{1}{6} + \frac{7}{12}$

11. $3\frac{1}{4} - 2\frac{1}{8}$

12. $1\frac{3}{8} + 1\frac{1}{2}$

13. $3\frac{1}{4} - 1\frac{1}{3}$

14. $2\frac{2}{3} + \frac{4}{5}$

15. $5\frac{1}{2} - 2\frac{1}{5}$

16. $1\frac{1}{6} - 1\frac{1}{8}$

Answers

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

2. $\frac{7}{8}$

3. $\frac{17}{18}$

4. $\frac{5}{6}$

5. $\frac{23}{28}$

6. $\frac{37}{24}$

7. $\frac{11}{24}$

8. $\frac{4}{15}$

9. $\frac{1}{12}$

10. $\frac{11}{4}$

11. $\frac{9}{8}$

12. $\frac{23}{8}$

13. $\frac{23}{12}$

14. $\frac{52}{15}$

15. $\frac{33}{10}$

16. $\frac{1}{24}$