

Worksheet: Adding & Subtracting Fractions

This worksheet has questions that will test your ability to add and subtract fractions. They start off with fractions that are in everyday use. You already know that a half plus a quarter is three quarters without doing any maths. Then you are asked to try to add and subtract fractions using the method of finding a common denominator – first by multiplying the denominators and then by finding the lowest common multiple (LCM). Then mixed fractions are tackled by first making them into improper fractions and then using the common denominator methods. The last two problems are more testing applications but show you that you can add and subtract all sorts of fractions.

Model solutions to
this sheet



Adding and Subtracting
Fractions study guide



1. Calculate the following and simplify the answer if you think it is appropriate:

(a) $\frac{1}{3} + \frac{1}{3}$

(b) $\frac{1}{3} + \frac{2}{3}$

(c) A half plus a quarter

(d) $\frac{1}{2} - \frac{1}{4}$

(e) $\frac{5}{6} + \frac{1}{6}$

(f) $\frac{1}{6} + \frac{7}{6}$

(g) $-\frac{1}{6} - \frac{1}{6}$

(h) $\frac{1}{8} - \frac{1}{8}$

(i) $-\frac{1}{8} + \frac{1}{8}$

2. For these questions you need to find a common denominator (remember that you cannot add/subtract fractions which have different denominators). Here the denominators are co-prime and so the common denominator is found by multiplying together the denominators in the question. Calculate and simplify if possible:

(a) $\frac{2}{3} + \frac{1}{2}$

(b) $\frac{1}{2} - \frac{2}{3}$

(c) $\frac{3}{7} + \frac{1}{2}$

(d) $\frac{4}{3} - \frac{3}{4}$

(e) $\frac{7}{15} + \frac{5}{7}$

(f) $\frac{1}{3} + \frac{1}{100}$

(g) $\frac{3}{100} - \frac{4}{7}$

(h) $\frac{4}{11} - \frac{2}{9}$

(i) $\frac{1}{1000} - \frac{2}{543}$

3. Although multiplying together the denominators always gives a suitable common denominator, the most efficient number to use as a common denominator is the lowest common multiple of the denominators. For these questions use the lowest common multiple of the denominators as the common denominator.
Calculate

(a) $\frac{1}{2} + \frac{1}{4}$ (b) $\frac{5}{6} - \frac{1}{3}$ (c) $\frac{3}{8} + \frac{1}{4}$

(d) $\frac{7}{9} - \frac{1}{3}$ (e) $\frac{3}{4} - \frac{1}{6}$ (f) $\frac{5}{12} - \frac{1}{2}$

(g) $\frac{3}{4} + \frac{1}{12}$ (h) $\frac{3}{14} - \frac{1}{4}$ (i) $\frac{4}{9} + \frac{1}{12}$

4. Mixed fractions can cause confusion when used in complicated calculations. You should always use improper fractions where you can. Convert the mixed fractions to improper fractions and then perform the following calculations:

(a) $1\frac{1}{2} - \frac{1}{3}$ (b) $5\frac{1}{3} - \frac{5}{6}$ (c) $4\frac{3}{8} + 2\frac{1}{4}$

5. Miscellaneous problems involving adding and subtracting fractions.

(a) $\frac{1}{2} + \frac{1}{3} + \frac{1}{6}$ (b) $\frac{1}{2} + \frac{2}{3} - \frac{1}{2}$ (c) $\frac{3}{4} - \frac{1}{5} - \frac{1}{10}$

Express the answers to the following three questions in decimal form.

(d) $\frac{1}{10^4} + \frac{1}{10^7}$ (e) $\frac{1}{10} + \frac{1}{100} + \frac{1}{1000}$ (f) $\frac{1}{10} + \frac{1}{100} + \frac{1}{1000} + \dots$

- (g) [Harder] A unit fraction is a fraction which has a numerator of 1. Can you think of three **different** unit fractions, which sum to give 1? Use this to find a general method to find three unit fractions which add together to give **any** other unit fraction $1/a$.



This worksheet is one of a series on mathematics produced by the Learning Enhancement Team.

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