

Lesson 3: Combining Fractions

Goals:

- Combine fractions with the same denominator.
- Determine the lowest common denominator.
- Combine fractions with different denominators.

The following box reviews the rules we follow when combining signed numbers. These rules apply to all types of numbers, including fractions.

When combining fractions, the rules that we learned for signed numbers still apply. However, when we combine fractions, the bottom numbers of the fractions, called the denominators, must be the same. If they are not the same, you must change all the fractions in the questions to equivalent fractions to make them the same.

- If the numbers have **the same sign**, add the numbers together and keep the sign.
- If the numbers have **different signs**, subtract the numbers (larger – smaller) and keep the sign on the larger number.

Example 1

Combining fractions when the denominators are the same:

$$\text{a) } \frac{2}{9} + \frac{3}{9} = \frac{5}{9}$$

$$\text{b) } \frac{2}{9} - \frac{3}{9} = -\frac{1}{9}$$

$$\text{c) } -\frac{5}{3} - \frac{1}{3} = -\frac{6}{3} = -2$$

$$\text{d) } -\frac{2}{4} + \frac{3}{4} = \frac{1}{4}$$