# Simplifying algebraic fractions

The fraction can be simplified by dividing the numerator and denominator by 8, as shown.

2

3

Similarly, the algebraic fraction can be simplified by dividing the numerator and denominator by any common factors.

Thus,

3

1

1

1

Simplify each of the following:

1

1

3

1

1

1

1

1

1. Using factors to simplify algebraic fractions

The expression can be simplified by first factorizing the numerator and then dividing above and below by the highest common factor.

Simplify the following:

1. Adding and subtracting algebraic fractions

When adding or subtracting algebraic fractions a common denominator must be used

Simplify the following:

So, to subtract both terms, a common denominator needs to be identified. The common denominator for the above terms is .

1. Multiplying algebraic fractions

Algebraic fractions are multiplied by multiplying the numerator and denominators separately.

Simplify the following:

1. Dividing algebraic fractions

Algebraic fractions are divided by multiply by the denominator inverted.

Simplify the following:

So, in general to simplify algebraic fractions:

1. A common denominator is needed to add or subtract algebraic fractions.
2. Fractions can be simplified, only if, the numerator and denominator have a common factor.
3. If the denominator or numerator contain fractions added or subtracted, they must be reduced into a single fraction first before proceeding.
4. To divide fractions, multiply by the denominator inverted.