Long division of polynomials is one method of dividing one polynomial by another.

The long division of polynomials is the same as that for numbers and consists of the terms: dividend, what is being divided, divisor, what you are dividing by, quotient, your answer, and remainder, what is left over.

What is six x squared plus ten x subtract 24 divided by two x plus six?

Arrange the variables in order by degree or power, filling in any missing terms with a zero.

For this example, there are no missing terms.

Divide the first term of the dividend, six x squared by the first term of the divisor, two x to get the first term of the quotient, three x.

Multiply three x by two x plus six to get six x squared plus 18 x and subtract from six x squared plus ten x to get negative eight x.

Bring down the next term of the quadratic to form the new dividend, negative eight x subtract 24.

Repeat the process until a remainder is found, which can be zero or a lower power of x.

Negative eight x divided by two x equals negative four, negative four times two x equals negative eight x and negative four times 6 equals negative 24.

Subtracting this from the new dividend equals zero, which is the remainder.

The quotient, three x subtract four is our answer.

Remember before using long division of a polynomial make sure that it is written in descending order of degree or power and fill in any missing terms with a zero.