Integrating algebraic expressions is used to solve differential equations and evaluate definite integrals, for example to calculate the pressure in a dam.

When you integrate a function, it is the opposite of differentiation.

To integrate a polynomial function, increase the power by one and divide by the new power.

If integrating a term with respect to x, a constant is obtained so a constant term of integration needs to be added.

The notation is plus c.

Integrate the function f of x equals six square root x subtract four x to the power of negative three plus five dx.

First, using rules of indices change the square root of x into a fractional power, x to the power of a half.

Next, integrate each term using the rule, add one to the power and divide by the new power.

This gives six x to the power of half plus one, divided by three over two.

Flip the fraction and multiply leading to two thirds times six x to the power of three over two, which is four x to the power three over two.

Next four x to the power of negative three plus one, divided by negative two, which gives negative two to the power of negative two.

Five equals five x to the power of zero so integrated becomes five x to the power of one which is five x.

Leaving us with four x to the power of three over two plus two x squared plus five x.

Don’t forget to add C to represent the constant of integration.