Integration is used to find the area under a curve or a function.

In Physics it is used to find the velocity and trajectory of a satellite.

To find the area between two curves or a curve and a straight line, the integral of the upper line subtract the lower line has to be evaluated.

This graph shows the functions F of x equals x squared plus four x and G of x equals x cubed subtract three x.

The graphs intersect at the point A, three twenty-one.

Calculate the area of the shaded part.

F of x is the upper curve and G of X is the lower curve.

The area will be the definite integral of F of x subtract G of x between the limits zero and three.

The three is the x value of the point of intersection of both curves.

First simplify F of x subtract G of x before integrating.

So the integral becomes seven x plus x squared subtract x cubed dx.

Then integrate to seven x squared over two, plus one third x cubed, subtract one quarter x to the power of four.

Substitute and evaluate using the limits zero and three to get the area in squared units.

So, the area between the two curves is 20 and one quarter square units.

Remember to simplify the difference between the upper curve and lower curve before integrating.