Antiderivatives and Indefinite Integrals

An indefinite integral does not have limits of integration and its antiderivative gives us an entire family of possible curves, each of which differs only by a constant. We indicate that family by finding the antiderivative and then putting a + C at the end of it. That C is the constant by which each curve differs. If we are given initial conditions, then we can find its value.

Indefinite integrals are represented by the slope fields that we just looked at, and if we are given a specific point (an initial condition), then we would be able to draw a specific curve through the slope field.

Remember that Integration and differentiation are inverse operations and the better you know the basic derivatives the easier it will be to go the other way and find an antiderivative. Keep practicing them – we will be learning some more antiderivative methods later in this module.