Chain Rule & Integration by Substitution

underground mathematics

Station guide

Resources at this station use a variety of functions to develop ideas about the chain rule. Slippery slopes... another derivative and Slippery areas draw on ideas from previous resources, and use knowledge of transformations to offer a way to start informal thinking about the chain rule and integration by substitution respectively. Chain mapping provides a way to justify the chain rule in general, by visualising functions using mapping diagrams.

Other resources highlight situations where the chain rule might be useful. Reflecting on change helps to develop intuition about the gradient of an inverse function and Implicit circles works through an example of when we might need implicit differentiation.

The Developing section looks to build students' fluency in using the chain rule and integration by substitution through resources such as I can see u!, Can you find ... chain rule edition, and Integral sorting. Other resources focus on developing more specific understanding. Examples include Which substitution?, where we explore the impact of choosing one substitution over another, Differentiating exponentials, a scaffolded task to help students find the derivative of a^x, and Parametric points, which looks at differentiating parametric equations.