

# Polynomial Functions



“Julia set” in a crop circle at Stonehenge. Steve Alexander/Temporary Temple Press Ltd, [www.temporarytemples.co.uk](http://www.temporarytemples.co.uk)

*Polynomial functions are among the simplest and most common types of functions used in calculus and its applications. Since every polynomial is a sum of power functions with integer powers, we can quickly derive most properties of polynomial functions from what we know of power functions.*

*In this chapter we will learn how to factor polynomial expressions, including how to factor using synthetic division. We then apply the techniques of precalculus and calculus to investigate the local and global graphical behavior of polynomial functions. We conclude the chapter by using polynomial functions to introduce the concept of optimization.*

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