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## What you'll learn to do: Create graphs and write equations for polynomial functions

The revenue in millions of dollars for a fictional cable company from 2006 through 2013 is shown in the table below.

Year	2006	2007	2008	2009	2010	2011	2012	2013
Revenue	52.4	52.8	51.2	49.5	48.6	48.6	48.7	47.1

The revenue can be modeled by the polynomial function

$$R(t) = -0.037t^4 + 1.414t^3 - 19.777t^2 + 118.696t - 205.332$$

where  $R$  represents the revenue in millions of dollars and  $t$  represents the year, with  $t = 6$  corresponding to 2006. Over which intervals is the revenue for the company increasing? Over which intervals is the revenue for the company decreasing? These questions, along with many others, can be answered by examining the graph of the polynomial function. We have already explored the local behavior of quadratics, a special case of polynomials. In this section we will explore the local behavior of polynomials in general.

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