

Taylor Polynomials II Demonstration Activity

- 1) Open the Taylor Polynomials II Demonstration located at <http://demonstrations.wolfram.com/IntroductionToTaylorMaclaurinSeries/>
- 2) First get familiar with the various options. Choose a function. Adjust the slider for the number of terms.
- 3) Describe the technique being demonstrated using your own words.

- 4) Give the Taylor-Maclaurin Series with 10 terms for

$$\cos x = \underline{\hspace{15cm}}$$

$$\sin x = \underline{\hspace{15cm}}$$

$$e^x = \underline{\hspace{15cm}}$$

- 5) When the number of terms is 10, why does the Maclaurin series for $\sin x$ and $\cos x$ have fewer than 10 terms, but e^x has all 10 terms?

- 6) Show how to calculate the Maclaurin series (centered at 0) for $\cos x$ by hand.

- 7) These trigonometric and transcendental functions can be thought of as infinite polynomials - why?