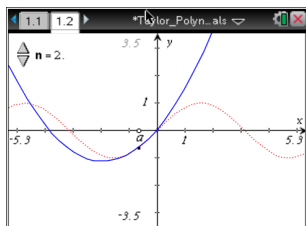


## 9.2a Taylor Series

What is the easiest family to integrate and take derivatives of?

How can we find a polynomial that looks like another function?



power series:  $p(x)$

$$p(x) = c_0 + c_1x + c_2x^2 + c_3x^3 + \dots$$

$$p(x) \approx f(x)$$

we have to find c's - coefficients

Feb 16-9:21 AM

Find a parabola that fits  $y = e^x$  for  $x$  near 0.

Feb 16-9:29 AM

Find an  $n$ th degree polynomial that fits  $y = e^x$  for  $x$  near 0.

Feb 16-9:31 AM

Construct a 4th degree polynomial that matches

$$y = \ln(1+x) \quad \text{at} \quad x = 0$$

Feb 16-9:33 AM

Maclaurin Series for  $f(x)$

Feb 16-9:36 AM

Find the Maclaurin series for  $f(x) = \sin x$ . How many terms are required to approximate  $\sin(7)$  accurate to the 3rd decimal place?

Feb 16-9:36 AM