MATH 5B - Single Variable Calculus II — Spring 2019

§11.11 Applications of Taylor Series

In-class Activity 11.11

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Activity 1:

For $\cos(x)$ centered at $x = 0$:

(a) Find the fourth degree Taylor polynomial.

(b) Find the interval around 0 for which the Taylor polynomial is accurate to within 0.005.

Activity 2:

(a) Use power series to evaluate: $\int \frac{\sin(x)}{x}\, dx$

(b) Write the first three, non-zero terms of your answer from part (a).

Activity 3:

Consider $y' - y = 0$.

(a) Use power series to find the general solution.

(b) Use part (a), to find the particular solution when $y(0) = 1$.

Activity 4:

Consider $y' = x^2 y$.

(a) Use power series to find the general solution.

(b) Use part (a), to find the particular solution when $y(0) = 1$.