

Warm-Up

Ex. Suppose that the function $f(x)$ is approximated near $x = 0$ by a third-degree Taylor polynomial $P_3(x) = 2 - 5x^2 + 8x^3$

- (a) Find the value of $f(0)$, $f'(0)$, $f''(0)$, and $f'''(0)$
- (b) Does f have a local maximum, a local minimum, or neither at $x = 0$? Justify your answer.

Use a known Maclaurin series to write a series for:

$$x \sin x =$$

$$\cos x^2 =$$

$$\frac{e^x - 1}{2} =$$