***TAYLOR SERIES***

**TAYLOR POLYNOMIALS**: Use an nth degree Taylor polynomial to approximate *f(x)* near *x=c.*

 

 \*A Maclaurin polynomial is centered at *x* = 0.

 ***Remember****: Don’t go beyond the degree asked for on the test!*

 ***TAYLOR’S THEOREM:***

, where . ← (Lagrange error bound) You don’t need to find *z*. Just look for the max value of on the interval between *x* and *c*.

**TAYLOR & MACLAURIN SERIES:**



 Taylor series converge to a function *f(x)* if  as .

**SAVE TIME ON THE EXAM BY MEMORIZING THESE COMMON TAYLOR SERIES!**

****

****

****

****

****

**CONVERGENCE:** Use ratio test to determine convergence of Taylor series. If  is the general term of a Taylor series,

 1.  ⇒ the series converges

 2.  ⇒ the series diverges

**INTEGRALS & DERIVATIVES OF TAYLOR SERIES**can be calculated term by term from a known Taylor series.

Integrals and derivatives have

 • the same radius of convergence

 • the same interval of convergence, except maybe at the endpoints of the interval.

 (You must test the endpoints in the series to determine convergence there.)