***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!**

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**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.)