

SECTION 6.4: WORKING WITH TAYLOR SERIES (BINOMIAL SERIES)

(1) **Starter Definition**

(2) **Starter Examples** Calculate the binomial coefficients below.

(a) $\binom{6}{2}$

(a) $\binom{10}{0}$

(c) $\binom{50}{1}$

(d) $\binom{50}{49}$

(e) $\binom{50}{51}$

(3) Expand $f(x) = (1 + x)^6$.

(4) Use the definition to find the first four terms of the of a Maclaurin Series for $f(x) = (1 + x)^6$.

(5) **Revisited Definition**(6) **Harder Examples** Calculate the coefficients below.

(a) $\binom{\frac{1}{2}}{3}$

(a) $\binom{\frac{1}{2}}{0}$

(a) $\binom{-\frac{1}{3}}{2}$

(a) $\binom{3.7}{4}$

(7) Use the definition to find the first four terms of the of a Maclaurin Series for $f(x) = (1 + x)^{1/2}$.(8) Maclaurin Series for $f(x) = (1 + x)^r$, for *any* real number r