

Section 18.4

Name \_\_\_\_\_

Binomial Expansions

Definition of ***n-factorial***  $n! = n(n-1)(n-2)\dots(3)(2)(1)$

Ex)    5!                                      7!                                      1!                                      0!

Evaluate

Ex)  $\frac{7!}{3!4!}$

Ex)  $\frac{12!}{7!5!}$

Combination Formula                       $\binom{n}{r}$                                        $\binom{7}{4}$                                        $\binom{12}{5}$

Binomial Expansion

$(a + b)^1 =$

$(a + b)^2 =$

$(a + b)^3 =$

Pascal's Triangle

An alternative for finding a coefficient when the degree of the binomial is large is the combination formula.

**Binomial Expansion Formula:**

$$(a + b)^n =$$

Write in expanded form:

$$(4x + 3y)^3 =$$

$$(2x - y)^4 =$$

Write the first three terms of the following

$$(x + 3)^{15} =$$

$$(y^2 - 2)^{10} =$$