

Chapter 11 Formula Card:

Special Series:

$$1) \quad \sum_{i=1}^n i = \frac{n(n+1)}{2}$$

$$2) \quad \sum_{i=1}^n i^2 = \frac{n(n+1)(2n+1)}{6}$$

$$3) \quad \sum_{i=1}^n i^3 = \frac{n^2(n+1)^2}{4}$$

Arithmetic

$$4) \quad a_n = a_1 + (n-1)d$$

$$5) \quad S_n = \frac{n}{2}(a_1 + a_n)$$

$$6) \quad S_n = \frac{n}{2}[2a_1 + (n-1)d].$$

Geometric

$$7) \quad a_n = a_1 r^{n-1}$$

$$8) \quad S_n = \frac{a_1(1-r^n)}{1-r}$$

$$9) \quad S_\infty = \frac{a_1}{1-r}$$

Counting

$$10) \quad P(n, r) = \frac{n!}{(n-r)!}$$

$$11) \quad C(n, r) = \frac{n!}{r!(n-r)!}$$