Factorials

- $5! = 5 \times 4 \times 3 \times 2 \times 1 (= 120)$
- $5! = 5 \times 4!$

The Choose Operator

$$\binom{n}{k} = \frac{n!}{k! \times (n-k)!}$$

$$\binom{3}{1} = \frac{3!}{1! \times (3-1)!} \frac{3 \times 2!}{1! \times 2!} = \frac{3}{1} = 3$$

The Choose Operator

- $\binom{3}{0} = 1$
- (Remember 0! is always equal to 1)
- $\binom{3}{1} = 3$
- $\binom{3}{2} = 3$
- $\binom{3}{3} = 1$

Choose Operator

For the positive integer *n* and non-negative integer *k* (with $k \leq n$), the choose operater is calculated as follows:

$$\binom{n}{k} = \frac{n!}{k! \times (n-k)!}$$

Choose Operator

Evaluate the following:

1 $\binom{5}{2}$

2 $\binom{5}{0}$

3 $\binom{10}{1}$

4 $\binom{10}{9}$