

Factorials !

$$N! = 1 \cdot 2 \cdot 3 \cdot 4 \cdot \dots \cdot N$$

$$0! = 1 \text{ (by definition)}$$

$$1! = 1$$

$$2! = 1 \cdot 2 = 2$$

$$3! = 1 \cdot 2 \cdot 3 = 3$$

$$4! = 1 \cdot 2 \cdot 3 \cdot 4 = 24$$

$$5! = 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 = 120$$

$$6! = 5! \cdot 6 = 720$$

$$7! = 6! \cdot 7 = 5,040$$

$$8! = 7! \cdot 8 = 40,320$$

$$9! = 8! \cdot 9 = 362,880$$

$$10! = 9! \cdot 10 = 3,628,800$$

$$11! = 10! \cdot 11 = 39,916,800$$

$$12! = 11! \cdot 12 = 479,001,600$$

$$13! = 12! \cdot 13 = 6,227,020,800$$

$$14! = 13! \cdot 14 = 87,178,291,200$$

$$15! = 14! \cdot 15 = 1,307,674,368,000$$