Other Common Sequences and Series

Factorials

While this particular class does not focus on them much, they become important in calculus and probability.

Definition: *Factorial*

For a nonnegative integer n, the **factorial** of n is defined as

$$n! = n(n-1)(n-2)\cdots(3)(2)(1)$$

with the special case that $0! = 1$.

The factorial of n is the product of all positive integers less than or equal to n, which is a recursive sequence: $n! = n(n-1)!$.

Simplify the following factorials.

1. $\dfrac{8!}{2! \cdot 6!}$

2. $\dfrac{n!}{(n-1)!}$

3. $\dfrac{4!(n+2)!}{6!n!}$