

Factorials

For a quick overview of factorials with a few practice problems, visit [this website](#).

Practice problems: Evaluate each factorial expression.

1. $\frac{20!}{18!}$

2. $\frac{13!}{19!}$

3. $\frac{5}{7!}$

4. $\frac{23!}{5!20!}$

5. $\frac{(7+2)!}{6!2!}$

6. $\frac{5!(4-3)!}{4!}$

7. $\frac{(n-3)!}{n!}$

8. $\frac{(2n+1)!}{(2n)!}$

9. $\frac{(3n-1)!}{(3n+1)!}$

Given the general term of the sequence, write out the first four terms.

10. $a_n = \frac{2n^3}{n!}$

11. $a_n = 2(2n + 3)!$

12. $a_n = \frac{1}{n!}$

13. $a_n = \frac{n!}{2n+1}$

Answers

1. 380
2. $\frac{1}{19535040}$
3. $\frac{1}{1008}$
4. $\frac{1771}{20}$
5. 252
6. 5
7. $\frac{1}{n(n-1)(n-2)}$
8. $2n + 1$
9. $\frac{1}{3n(3n+1)}$
10. 2, 8, 9, $\frac{16}{3}$
11. 240, 10080, 725760, 79833600
12. 1, $\frac{1}{2}$, $\frac{1}{6}$, $\frac{1}{24}$
13. $\frac{1}{3}$, $\frac{2}{5}$, $\frac{6}{7}$, $\frac{24}{9}$