

Factorial Practice

Simplify and evaluate. No calculators!

1. $6!$

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

3. $\frac{6!}{4!}$

4. $\frac{6!}{4!2!}$

5. $\frac{5!}{2!2!}$

6. $\frac{7!}{3!2!}$

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

8. $\frac{7!}{(7-4)!4!}$

9. $\frac{4!}{(4-1)!0!}$

Simplify. (There should be no more factorials left)

10. $\frac{n!}{(n-2)!}$

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

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

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

14. $\frac{(2n+1)!}{(2n+3)!}$

15. $\frac{[2(n+1)]!}{(2n)!}$

Evaluate the limit.

16. $\lim_{n \rightarrow \infty} \frac{n!}{(n+1)!}$

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

18. $\frac{x''}{n!}$

Find the derivative. No calculators. You may use factorials in your answer.

19. f^{10} of x^{10}

20. f^{15} of $3x^{15}$

21. f^{40} of $5x^{40}$