

Assignment 2 – Factorials
Precalculus for Juniors

Name _____
Per _____ Date _____

Write the first 5 terms of the defined sequence.

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

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

Write an explicit Rule for each sequence.

3. 5040, 720, 120, 24, ...

4. $0, \frac{-2}{1}, \frac{4}{2}, \frac{-6}{6}, \frac{8}{24}, \dots$

Evaluate each expression. Simplify completely.

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

6. $\frac{16!3!}{15!4!}$

7. $\frac{9!4!}{7!}$

8. $\frac{5!6!}{3!4!}$

Simplify each expression completely.

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

10. $\frac{(n+4)!}{3!(n+2)!}$

11. $\frac{(n-2)!(n+4)!}{(n-1)!(n+2)!}$

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

13. $\frac{(n-6)!(n+2)!}{(n-5)!(n-2)!}$

14. $\frac{(n+5)!(n-2)!}{(n-1)!(n+4)!}$