



Try these problems before watching the lesson.

1. What is the value of $\frac{5! \cdot 2!}{3!}$?
2. Simplify: $\frac{18!}{16!}$.
3. For what value of n does $\frac{10!}{7! \cdot 3!} = n!$?
4. Compute: $\frac{6! + 5!}{5!}$.



First Problem: What value of n satisfies $(n + 1)! - n! = 4320$?

Second Problem: What is the greatest integer p such that $33!$ has $3p$ as a factor?

Third Problem: What is the value of $\frac{5! + 6!}{4! + 3!}$?



5. What is the value of $\frac{8! + 9!}{7! + 8!}$? Express your answer as a common fraction.
6. What is the greatest perfect square that is a factor of $7!$?
7. Given that 10^k is a factor of $25!$, what is the greatest possible value of k ?
8. If the sum of $1! + 2! + 3! + \cdots + 49! + 50!$ is divided by 15, what is the remainder?

 *Share Your Thoughts*

Have some thoughts about the video? Want to discuss the problems on the Activity Sheet? Visit the MATHCOUNTS Facebook page or the Art of Problem Solving Online Community (www.artofproblemsolving.com).