

Instructions: Use proper notation (exponents or permutation/combination notation) to answer the following questions. If the number is less than a million, also analyze it.

1. Suppose a student has signed up for 5 classes this semester. The student is trying to decide which order to take the classes in. How many orders are possible?

$${}_5P_5 = 5! = 120$$

2. The highest prize in a lottery is based on getting all the numbers correct in the right order. Suppose that the lottery is a Pick-4, with each number choice is a number from 1-13, and repetition is not allowed.

$${}_{13}P_4 = 17,160$$

3. From a class of 20 students, 5 students are going to be chosen to go on a school trip. How many ways can the 5 students be chosen?

$${}_{20}C_5 = \binom{20}{5} = 15,504$$

4. Suppose a model has 11 jackets, 25 blouses, 13 pairs of pants, 20 pairs of shoes and 12 purses. How many different outfits can she make from her closet?

$$11 * 25 * 13 * 20 * 12 = 858,000$$

5. A twelve-member committee is being formed from the 1800 adjunct faculty that teach at Columbus State. How many possible committees are there?

$${}_{1800}C_{12} = \binom{1800}{12} \approx 2.32 \times 10^{30}$$