

I have 5 shirts and 3 pairs of shorts.
 How many different outfits can I
 make assuming they all match since
 I would never go out in public
 looking poorly dressed?

$$\begin{array}{l}
 G \leftarrow \\
 W \leftarrow \\
 B \leftarrow \\
 Y \leftarrow \\
 T \leftarrow
 \end{array}
 \quad
 \frac{5}{S} \cdot \frac{3}{\text{shorts}} = 15$$

When dressing a model, I have to put the
 following items on it: shirt, socks, shoes,
 pants, and sunglasses. If I have 3 shirts,
 4 pairs of socks, 2 shoes, 3 pants, and
 3 types of sunglasses, how many
 different looks can I create for this model?

$$\frac{3}{S} \cdot \frac{4}{\text{socks}} \cdot \frac{2}{\text{shoes}} \cdot \frac{3}{P} \cdot \frac{3}{S} =$$

From 12 toppings, how many different
 pizzas can I make that have 2 toppings
 or less? Think on this one.

$$\begin{array}{r}
 \underline{\text{2 toppings:}} \quad 12nC2 = 66 \\
 \text{1 topping:} \quad \cancel{12nC1} \quad 12 \\
 \text{0 toppings} \quad \cancel{12nC0} \quad 1 \\
 \hline
 79
 \end{array}$$

If there are 10 people in my class
 and I want to give 4 of them a bonus project,
 how many different groups could I have do the project?

$$10nC4 = 210$$

If there are 8 kids on my little league
 basketball team, how many different
 set of 5 kids could I start? I am not
 concerned about position on the court.

$$8nC5$$

When I took my wife out to eat on our 10th Wedding Anniversary, I took her to a top notch restaurant called "Elizabeth's on 37th." On the menu, we had a choice of 6 main entrees, 8 side dishes, 5 desserts, and 4 different types of beverages. How many different types of meals could I have had that evening assuming that you only received one main entrée, one side dish, 1 dessert and 1 beverage. For \$150, you would think I could have gotten more food, wouldn't you?

$$\frac{6}{\text{M.E.}} \cdot \frac{8}{\text{S.D.}} \cdot \frac{5}{\text{D.}} \cdot \frac{4}{\text{B.}} = 960$$

Out of 110 Seniors, I have to pick a President, Vice-President, and Secretary. How many different ways could I form the Senior Cabinet?

$$\frac{110}{\text{P.}} \cdot \frac{109}{\text{V.P.}} \cdot \frac{108}{\text{S.}} =$$

For my parent's 50th Wedding Anniversary, I want to have a big party. Shhh, don't tell them. From the caterers 14 different desserts, I can choose 3. How many different options do I have?

$${}_{14}nCr 3 = 364$$