There are 25 people in a jury pool

3rd

a) A jury of 12 members must be selected from that jury pool. How many different juries are possible?

$_{25}C_{12} = 5,200,300$

b) After the jury is selected a Foreman and an Assistant Forman must be selected. How many ways can this be done?

$_{12}P_{2} = 132$

Your little sister likes dolls. When you go to the store dolls are on sale. On the shelf there are 11 different dolls to choose from.

3rd

How many different ways can your sister pick 4 dolls to buy?

$_{11}C_{4} = 330$

How many different ways can she pick 5 dolls to buy?

$_{11}C_{5} = 462$

How many different ways can she pick 4 or 5 dolls to buy?

$330 + 462 = 792$

3rd

At the amusement park they sell 8 different kinds of t-shirts.

How many ways can you pick at least 6 different shirts to buy?

$\underset{\text{pick 6}}{_{8}C_{6}} + \underset{\text{pick 7}}{_{8}C_{7}} + \underset{\text{pick 8}}{_{8}C_{8}}$

$28 + 8 + 1 = 37$

What is the probability that I'm dealt a Royal Flush in Hearts?

3rd

How many different 5 card hands can be dealt from a standard deck of cards?

$_{52}C_{5} = 2,598,960$

Probability of getting a Royal Flush in Hearts =

$\frac{1}{2,598,960}$

You want to create a new health drink that is a mixture of fruits and vegetables. You have 6 vegetables and 7 fruits to choose from. You want to include 3 fruits and 2 vegetables. Find all the different mixtures of drinks that you can create.

$$\underbrace{35}_{\text{3 fruits}} \cdot \underbrace{15}_{\text{2 vegetables}} = 525$$

$_7C_3$ $\quad$ $_6C_2$

In the refrigerator there are 4 different Gatorade flavors, Coke, Sprite, Apple Juice, Orange Juice, and water.

Your mom said that you could take 2 or 3 drinks to the game. You want different drinks to take.

How many ways could you take 2 or 3 different drinks to the game?

$$\underbrace{36}_{\text{2 drinks}} + \underbrace{84}_{\text{3 drinks}} = 120$$

$_9C_2$ $\quad$ $_7C_3$

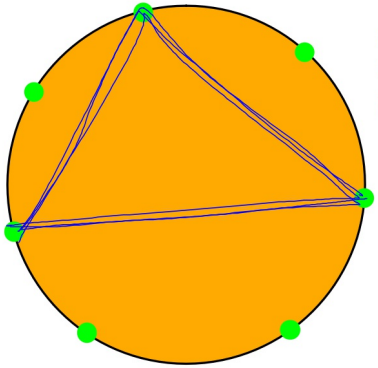
This is a garage door opener keypad.
If the code consists of 4 digits how many codes are possible if:

1. A number can't be repeated.

$10 \cdot 9 \cdot 8 \cdot 7 = 5040$ or $_{10}P_4 = 5040$

2. A number can be repeated.

$10 \cdot 10 \cdot 10 \cdot 10 = 10{,}000$



How many triangles can be formed by connecting three of these points?

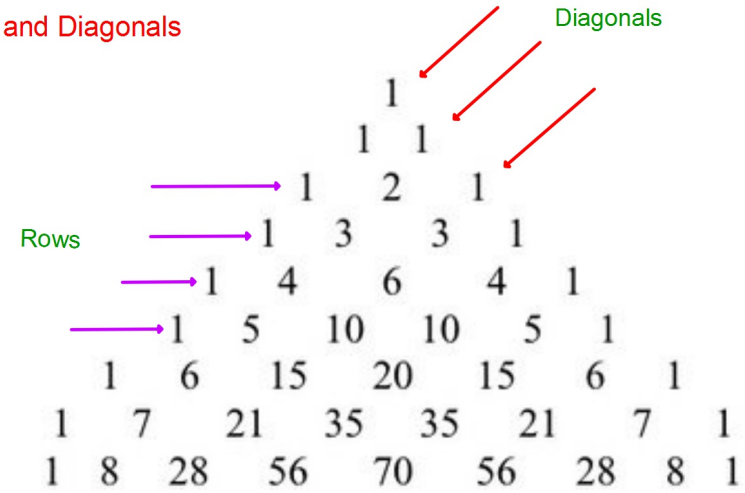
It takes three points to make a triangle and it doesn't matter the order in which you connect them

$_7C_3 = 35$

Find the next two rows of this pattern

1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
1 6 15 20 15 6 1
1 7 21 35 35 21 7 1

Rows and Diagonals



Use a calculator to find each.

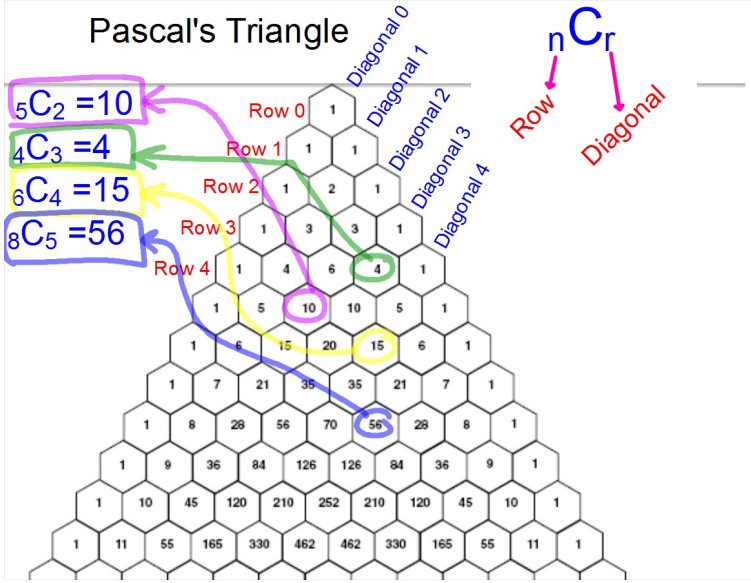
$_5C_2$ = 10

$_4C_3$ = 4

$_6C_4$ = 15

$_8C_5$ = 56

Pascal's Triangle



Use Pascal's Triangle to find each combination.

1. ${}_6C_3 = 20$

Row 6 Diagonal 3

2. ${}_8C_5$ 56

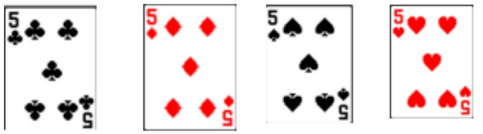
Row 8 Diagonal 5

3. ${}_9C_7 = 36$

Row 9 Diagonal 7

In the card game of cribbage you get points if your cards add up to 15.

How many ways can you add up to 15 if you have the four 5's in your hand?



${}_4C_3 = 4$

You also get points for having pairs of cards. How many pairs of 5 can you make if you have four 5's?

${}_4C_2 = 6$

4. You run a 5k race for charity. The top 3 finishers each win a $50 gift card to Best Buy. If there are 100 people running the 5k how many ways can the gift cards be awarded?

${}_{100}C_3 = 161,700$

5. There are 20 active skaters on an NHL roster for each game. If there is a shoot out a coach must list 3 players to participate in the first round in order of when they will shoot. How many different lists can the coach make?

${}_{20}P_3 = 6840$

6. You want to frame a picture to hang at home. At the frame shop there are 12 different frame styles to choose from, 15 different background colors to choose from, and 5 different frame sizes to choose from. How many different pictures can you create?

$$\frac{12}{12_1} \cdot \frac{15}{15_1} \cdot \frac{5}{5_1} = \boxed{900}$$