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

How many ways can you pick at least 5 different shirts to buy?

$\underbrace{56}_{5\text{ shirts}} + \underbrace{28}_{6\text{ shirts}} + \underbrace{8}_{7\text{ shirts}} + \underbrace{1}_{8\text{ shirts}} = 93$

${}_8C_5 \quad {}_8C_6 \quad {}_8C_7 \quad {}_8C_8$

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

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

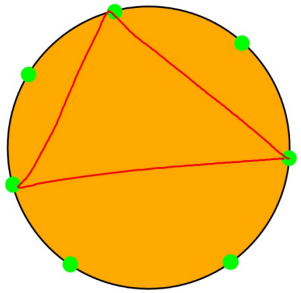
This is a garage door opener keypad.
If the code consists of 4 digits how many codes are possible if:

1. A number can't be repeated.

$10 \cdot 9 \cdot 8 \cdot 7$ 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?

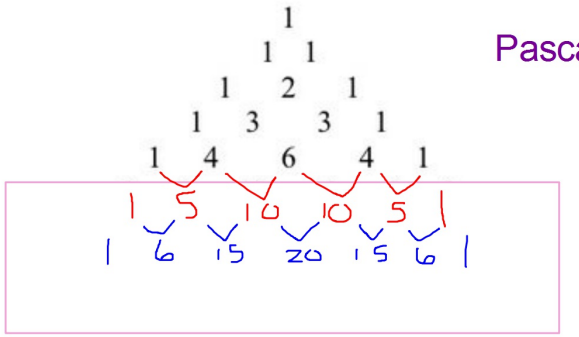
${}_7C_3 = 35$

How many quadrilaterals are possible?

${}_7C_4 = 35$

when you take three points to form a triangle the remaining points form a Quadrilateral. That is why there is the same amount of each.

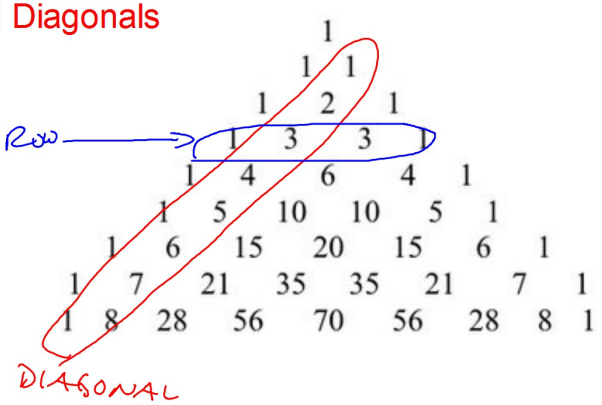
Find the next two rows of this pattern



Pascal's Triangle

All rows start and end with a 1. Each entry is the sum of the two numbers above.

Rows and Diagonals



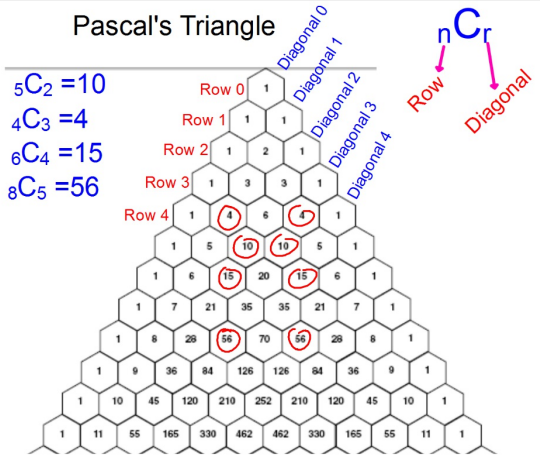
Use a calculator to find each.

$_5C_2 = 10$

$_4C_3 = 4$

$_6C_4 = 15$

$_8C_5 = 56$



Use Pascal's Triangle to find each combination.

1. ${}_6C_3 = 20$

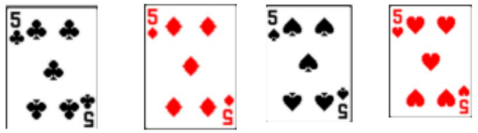
2. ${}_8C_5 = 56$

3. ${}_9C_7 = 36$

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?

$4C_2 = 6$

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?

$20P_3 =$

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?

$12 \cdot 15 \cdot 5 = 900$

Frame · Background · Size

You can now finish Hwk #14

Sec 6-7

Pages 348-349

Problems: 9, 18-20, 29-32, 39, 40, 46-49, 55

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?

$_9C_2$ 2 drinks: 36 + 3 drinks: $_9C_3$ 84 = 120

Section 1-6: Probability

2 kinds of probability

Experimental Probability

Using the results of an experiment to predict future outcomes.

$$= \frac{\text{\# times an event occurs}}{\text{Total \# of trials}}$$

Theoretical Probability

Using knowledge of a situation to predict future outcomes.

$$= \frac{\text{\# of favorable outcomes}}{\text{Total possible outcomes}}$$

also known as: Sample space

A number is considered Prime if
it has only two distinct factors: 1 and itself.

Is this Experimental or Theoretical Probability?

You will spin this spinner once. Find each probability as a fraction.

1. P(Factor of 12) = $\frac{5}{8}$
2. P(multiple of 3) = $\frac{2}{8}$
3.
4.
5.
6.