

11-6-17

- ① From 4 people (A, B, C, D)  
I must pick 2 to babysit.  
List my options.

AB ~~BA~~ ~~CA~~ ~~DA~~  
AC BC ~~CB~~ ~~DB~~  
AD BD CD ~~DC~~

⑥

Order  
didn't  
matter  
↓  
Combination  
problem

$$4nC2 = 6$$

- ② Sal's has 14 toppings  
I want a 3 topping pizza  
How many options are there?

Since order doesn't matter,  
it's a combo problem.

$$14nC3 = 364$$

- ③ From my 40 shirts, I must  
pick 5 to pack for vacation.  
How many options exist?

order doesn't matter, so

$$40nC5 = 658,008$$

④ How many different  
5 card hands can be dealt?

Order doesn't matter,

$$\text{so } 52nC5 = 2,598,960$$

⑤ What are odds I get  
dealt a Royal Flush?

$$\frac{4}{2,598,960} = \frac{1}{649,740}$$

⑥ How many ways can the  
10 question Review Quiz be  
answered?

$$\frac{4}{1} \cdot \frac{4}{2} \cdot \frac{4}{3} \cdot \frac{4}{4} \dots 4^{10}$$

$$10,48,576$$

⑦ Lottery has you pick 5 numbers from 1-46 and then a powerball # from 1-46. How many options exist?

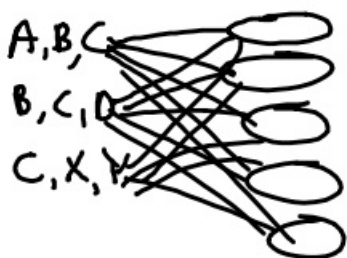
First 1-46      Powerball

46 nC1 5

$$\begin{array}{r} 1,370,754 \\ \times \quad 46 \\ \hline 63,054,684 \end{array}$$

$$\left. \begin{array}{l} 1 \\ 2 \\ 3 \\ 4 \end{array} \right\} 46$$

⑧ From 9 boys and 8 girls I will pick 3 boys and 3 girls to go to Sal's with me. How many options are there?



$$\begin{array}{r} \text{Boys} \qquad \text{Girls} \\ \hline 9nC3 \qquad 8nC3 \\ 84 \times 56 \\ \hline 4,704 \end{array}$$

11-6-17 3<sup>rd</sup> Trig

① From 4 people (A, B, C, D)

I must pick 2 people to babysit. How many options do I have?

AB ~~BA~~ ~~CA~~ ~~DA~~    order  
AC BC ~~CB~~ ~~DB~~    doesn't  
AD BD CD ~~DC~~    matter

6

$$4nC2 = 6$$

② From the 14 toppings, we will make a 2 topping pizza. How many possibilities exist?

$$14nC2 = 91$$

③ How many 5 card hands can be dealt in Poker?

$$52nC5 = 2,598,960$$

④ What are the odds of getting a Royal Flush?

$$\frac{4}{2,598,960} = \frac{1}{649,740}$$

- ⑤ Lottery you pick 5 numbers from 1-59. Then you must pick a Powerball from 1-59. How many possibilities exist?

$$59 \text{ nCr } 5 = 5,006,386$$

$$\times \quad 59$$

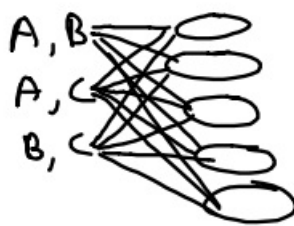

---


$$295,376,774$$

- ⑥ On your R.A. you had 10 questions w/ options A,B,C,D. How many possibilities exist?

$$\frac{4}{1} \frac{4}{2} \frac{4}{3} \dots \cdot 4^{10} = 1,048,576$$

- ⑦ There are 5 girls and 9 boys in my class. I will pick 2 girls and 3 boys to be on the team. How many possibilities exist?



<u>Girls</u>	-	<u>Boys</u>
$5 \text{ nCr } 2$		$9 \text{ nCr } 3$
10		84
840		

11-6-17 4<sup>th</sup> Try

- ① From 4 people (A, B, C, D), I will pick 2 to babysit. List my possibilities.

AB	<del>BA</del>	<del>CA</del>	<del>DA</del>	Order didn't matter
AC	BC	<del>CB</del>	<del>DB</del>	
AD	BD	CD	<del>DC</del>	

⑥

$$4 \text{ nCr } 2 = 6$$

- ② At Sal's there are 16 toppings. How many two topping pizzas can be made?

$$16 \text{ nCr } 2 = 120$$

- ③ How many 5 card hands can be dealt?

$$52 \text{ nCr } 5 = 2,598,960$$

- ④ What are odds you are dealt a Royal Flush?

$$\frac{4}{2,598,960} = \frac{1}{649,740}$$



- ⑤ Powerball has you pick 5 white balls #1-69 and then you must match the red ball that is numbered 1-26. What are my odds of winning?

$$\begin{array}{r}
 69nC5 \\
 11,238,513 \times 26 \\
 \hline
 292,201,338
 \end{array}$$

- ⑥ On the RQ I gave back, what are odds you guessed at each question and got all 10 correct?

$$\begin{array}{r}
 \frac{4}{1} \cdot \frac{4}{2} \cdot \frac{4}{3} \cdot \frac{4}{4} \cdot \frac{4}{5} \dots = 4^{10} \\
 \hline
 1,048,576
 \end{array}$$

- ⑦ From 6 girls and 7 boys, I will pick 2 from each and make a team. How many possibilities exist?

$$\begin{array}{r}
 \text{Girls} \\
 6nC2 \\
 15
 \end{array}
 \times
 \begin{array}{r}
 \text{Boys} \\
 7nC2 \\
 21
 \end{array}
 = 315$$