Cinderella has 3 skirts, 6 blouses, and 4 pairs of sandals in her closet. How many different ways can she choose a skirt, a blouse, and a pair of sandals to wear?

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$3 \cdot 6 \cdot 4 = \boxed{72}$

A license plate consists of 4 letters followed by 3 digits. If the letters and digits can repeat, how many different license plates are there?

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$26 \quad 26 \quad 26 \quad 26 \qquad 10 \quad 10 \quad 10$

$26^4 \cdot 10^3 =$

$\boxed{456{,}976{,}000}$

A library issues cards with ID numbers that follow the following guidelines: 8 digits long, digits cannot repeat, and the first and last digit cannot be 0 or 1. How many different library ID numbers are possible?

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$8 \quad 8 \quad 7 \quad 6 \quad 5 \quad 4 \quad 3 \quad 7$

$\boxed{1{,}128{,}960}$

Tiana wants to walk to Walgreens but can only travel South and East. How many different ways can she get there?

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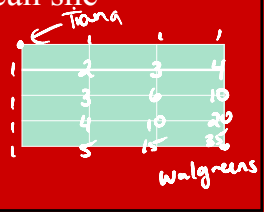
35 ways



Ariel has 6 different stuffed animals she wants to arrange on her shelf. How many different ways can she arrange them on her shelf?

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$_6P_6$ or $6! = 720$

Aurora wants to create a group of 4 students to perform a dance in front of the class. She has 24 students to choose from. How many different ways can she form the group?

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$_{24}C_4 = 10{,}626$

Baloo wants to create a band of 5 students to play the following instruments: lead guitar, bass guitar, drums, tamborine, and vocals. He has 24 students to choose from. How many different ways can he form a band?

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$_{24}P_5 = 5{,}100{,}480$

A coin is tossed 10 times. How many different outcomes of heads and tails are possible?

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$2^{10} = 1024$

6 men and 8 women are trying to form a committee of 5 people. How many ways can a committee be formed if there must be at least one woman?

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$_6C_4 \cdot {}_8C_1 + {}_6C_3 \cdot {}_8C_2 + {}_6C_2 \cdot {}_8C_3 + {}_6C_1 \cdot {}_8C_4 + {}_6C_0 \cdot {}_8C_5$

$= 1996$

A coin is tossed 10 times. What is the probability that the tosses result is 5 heads and 5 tails?

A coin is tossed 10 times. What is the probability that the tosses result is 5 heads and 5 tails?

$S = 2^{10} = 1024$ $\quad {}_{10}C_5 = 252$

$\frac{252}{1024} = \boxed{\frac{63}{256}}$

Hans draws one card from a deck of cards. What is the probability that he draws a red ace?

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$\frac{2}{52} = \boxed{\frac{1}{26}}$

Snow White plays a lottery where 5 digits from 0-20 are drawn. To win, she must have the same 5 digits that were drawn in any order. What is the probability she wins this lottery?

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$S = {}_{21}C_5 = 20349$

$\boxed{\frac{1}{20349}}$

In a local school, 42% of all boys in school are on the cross country team, 51% of all boys are on the track team, and 30% of all boys are on both teams. Draw a Venn diagram for the situation. Then, what is the probability that if a boy is chosen at random he is neither on the cross country nor the track team?

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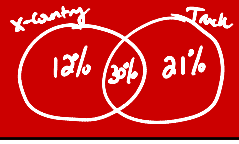

37%

During a tennis match, a player serves to the right side of his opponent 60% of the time. When he does serve it to the right side of his opponent, his opponent has a 90% chance of returning it. If he doesn't serve it to the right side of his opponent, his opponent has a 55% chance of returning it. What is the probability that the opponent returns the serve?

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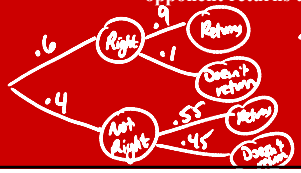

$.6 \cdot .9 + .4 \cdot .55$

$= .76$

76%

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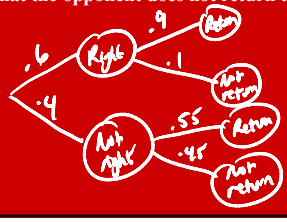

$.6 \cdot .1 + .4 \cdot .45$

$.24$

24%

During a tennis match, a player serves to the right side of his opponent 60% of the time. When he does serve it to the right side of his opponent, his opponent has a 90% chance of returning it. If he doesn't serve it to the right side of his opponent, his opponent has a 55% chance of returning it. What is the probability the ball was served to the right side of the opponent given that the serve was returned?

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$P(\text{right} \mid \text{returned}) = \frac{P(\text{right and returned})}{P(\text{returned})}$

$= \frac{.6 \cdot .9}{.76} = \frac{.54}{.76} \approx .711$

71.1%