

Use organized counting strategies

1

You are putting together a custom car. You choose one color (red, black, grey) and one wheel set (sport, classic). The wheel set must be sport.

- | | |
|---|---|
| A | Multiply the choices for every option and ignore the restriction. |
| B | Use 1 as the number of choices for that option, then multiply the choices across all options. |
| C | Subtract the number of options from the total number of choices. |
| D | Add together the number of choices for every option. |

2

You are putting together a gift basket. You choose one theme (spa, food, books) and one wrapping (red, gold). The wrapping must be red.

- | | | | |
|---|--------------|---|--------------|
| A | 3×2 | B | 3×1 |
| C | $3 + 1$ | D | 2×1 |

3

A fair six-sided die is rolled and a spinner with red, green, and blue sections is spun. A favourable outcome is one where the spinner shows blue.

- | | | | |
|---|----|---|---|
| A | 12 | B | 7 |
| C | 18 | D | 6 |

4

Order matters

Order matters

- | | | | |
|---|-------------|---|-------------|
| A | Permutation | B | Combination |
|---|-------------|---|-------------|

5

Combination

Combination

- | | | | |
|---|----------------------------------|---|----------------------------------|
| A | ${}_nC_r = \frac{n!}{(n-r)!}$ | B | ${}_nC_r = \frac{n!}{r! (n-r)!}$ |
| C | ${}_nC_r = \frac{r! (n-r)!}{n!}$ | D | ${}_nC_r = \frac{n!}{r! (n+r)!}$ |

6

From a class of 4 students, 2 are chosen and lined up left-to-right for a class photo. How many different line-ups are possible?

From a class of 4 students, 2 are chosen and lined up left-to-right for a class photo. How many different line-ups are possible?

- | | | | |
|---|----------------------------------|---|-------------------------------|
| A | ${}_nP_r = \frac{n!}{r!}$ | B | ${}_nP_r = \frac{n!}{(n-r)!}$ |
| C | ${}_nP_r = \frac{n!}{r! (n-r)!}$ | D | ${}_nP_r = \frac{n!}{(n+r)!}$ |

7

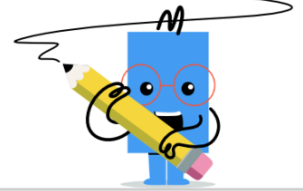
You are putting together a custom car. You choose one color (red, black) and one wheel set (sport, classic, off-road).

- | | | | |
|---|---|---|---|
| A | 7 | B | 5 |
| C | 8 | D | 6 |

8

You are putting together a gift basket. You choose one theme (spa, food, books) and one wrapping (red, gold). 1 of the possible gift baskets is unavailable.

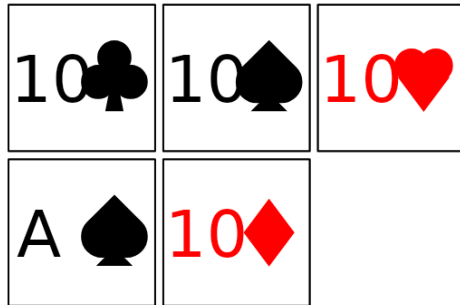
- | | | | |
|---|---|---|---|
| A | 4 | B | 7 |
| C | 5 | D | 6 |



Use organized counting strategies

9

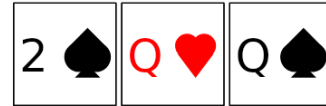
How many total ways can 3 cards be drawn from this set? Show as a binomial coefficient (bracket notation).



- | | |
|------------------|------------------|
| A $\binom{3}{5}$ | B $\binom{7}{2}$ |
| C $\binom{7}{3}$ | D $\binom{5}{3}$ |
| E $\binom{3}{3}$ | F $\binom{4}{3}$ |

10

Calculate the probability of drawing 2 Queens. Show as a fraction in nCm form

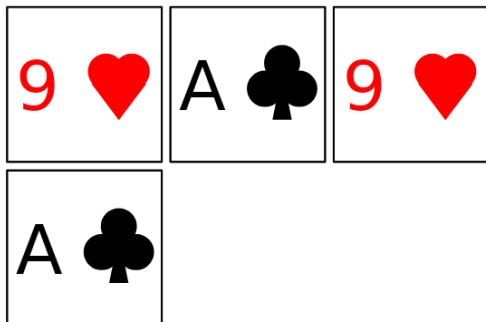


P(2 Qs)

- | | |
|-----------------------------|-----------------------------|
| A $\frac{{}_2C_2}{{}_3C_2}$ | B $\frac{{}_2C_2}{{}_2C_3}$ |
| C $\frac{{}_2C_3}{{}_2C_2}$ | D $\frac{{}_3C_2}{{}_2C_2}$ |
| E $\frac{{}_2P_2}{{}_3P_2}$ | |

11

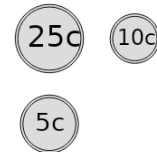
How many distinct ways can these cards be ordered? Show as a multiplication.



- | | |
|---|---|
| A $\frac{6 \cdot 5 \cdot 4 \cdot 3 \cdot 2}{2 \cdot 2}$ | B $\frac{6 \cdot 5 \cdot 4 \cdot 3 \cdot 2}{4 \cdot 3 \cdot 2 \cdot 2 \cdot 2}$ |
| C $\frac{3 \cdot 2}{2 \cdot 2}$ | D $\frac{4 \cdot 3 \cdot 2}{2 \cdot 2}$ |
| E $\frac{4 \cdot 3 \cdot 2}{4 \cdot 3 \cdot 2 \cdot 1}$ | |

12

What is the chance of flipping a mixed set (not all heads or all tails) on these coins?



- | | | |
|---------|---------|---------|
| A 0.429 | B 2 | C 0.8 |
| D 0.75 | E 2.333 | F 0.636 |

13

From a roster of 3 players, a group of 2 starting players is chosen. How many groups are possible?

From a roster of 3 players, a group of 2 starting players is chosen. How many groups are possible?

- | | |
|-----|-----|
| A 0 | B 3 |
| C 4 | D 6 |