

Calculate combinations

1

Order does not matter

Order does not matter

A

Combination

B

Permutation

2
 $\{6\text{choose}5\}$

$$\binom{6}{5}$$

A

$${}_6C_5$$

B

$${}_6P_5$$

C

$${}_6R_5$$

3

Combination

Combination

A

$${}_nC_r = \frac{n!}{r!(n+r)!}$$

B

$${}_nC_r = \frac{n!}{(n-r)!}$$

C

$${}_nC_r = \frac{n!}{r!}$$

D

$${}_nC_r = \frac{n!}{r!(n-r)!}$$

4

From 4 songs, 2 are placed into a numbered playlist order. How many playlists are possible?

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A

$${}_nP_r = \frac{n!}{(n+r)!}$$

B

$${}_nP_r = \frac{n!}{(n-r)!}$$

C

$${}_nP_r = \frac{n!}{r!}$$

D

$${}_nP_r = \frac{(n-r)!}{n!}$$

5
 ${}_5P_4$

$${}_5P_4$$

A

$${}_nP_r = \frac{r!}{(n-r)!}$$

B

$${}_nP_r = \frac{n!}{r!(n-r)!}$$

C

$${}_nP_r = \frac{n!}{(n-r)!}$$

D

$${}_nP_r = \frac{n!}{r!}$$

6

From 4 paintings, 2 are hung in a row along a gallery wall. How many arrangements are possible?

From 4 paintings, 2 are hung in a row along a gallery wall. How many arrangements are possible?

A

20

B

12

C

16

D

6

7
 $\frac{4!}{2! \cdot 2!}$

$$\frac{4!}{2! \cdot 2!}$$

A

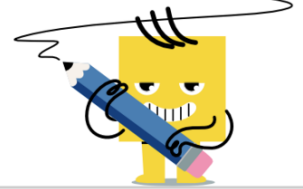
$$\frac{24}{4}$$

B

$$\frac{24}{2}$$

C

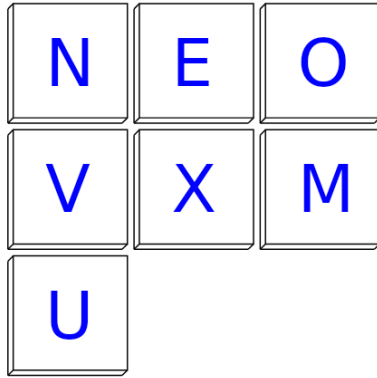
$$\frac{2}{24}$$



Calculate combinations

8

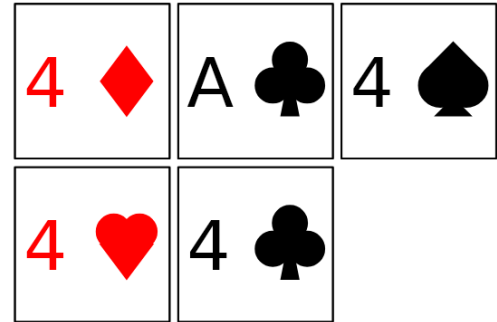
How many ways can 2 vowels be drawn from this set? Show in nCm notation.



- | | | | |
|---|-----------|---|-----------|
| A | ${}_5C_3$ | B | ${}_3P_2$ |
| C | ${}_4C_3$ | D | ${}_2C_3$ |
| E | ${}_3C_2$ | F | ${}_3R_2$ |

9

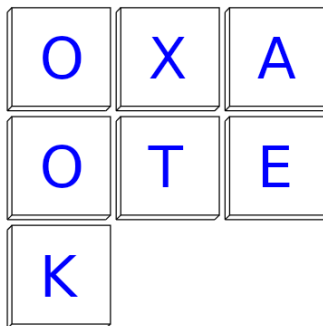
What's the chance of drawing two 4s from this set? Show in nCm notation.



- | | | | |
|---|---------------------------|---|---------------------------|
| A | $\frac{{}_4P_2}{{}_5P_2}$ | B | $\frac{{}_2C_4}{{}_6C_3}$ |
| C | $\frac{{}_2C_4}{{}_5P_2}$ | D | $\frac{{}_2C_4}{{}_7C_2}$ |
| E | $\frac{{}_4C_2}{{}_5C_2}$ | F | $\frac{{}_4R_2}{{}_5B_2}$ |

10

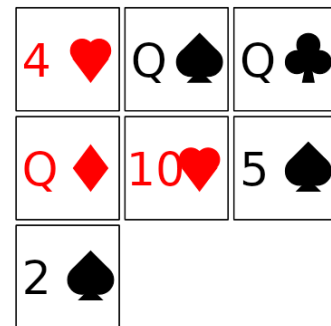
How many total ways can 3 letter tiles be drawn from this set? Show as a factorial.



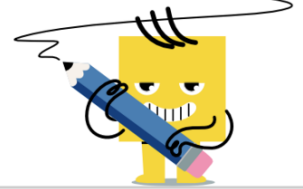
- | | |
|---|--------------------------|
| A | $\frac{7!}{4!}$ |
| B | $\frac{3!}{7! \cdot 4!}$ |
| C | $\frac{7!}{3! \cdot 4!}$ |

11

How many total ways can 2 cards be drawn from this set? Show as a factorial.



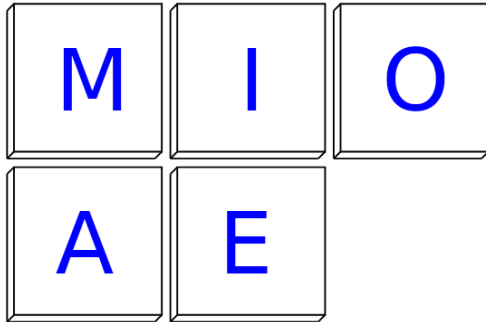
- | | |
|---|--------------------------|
| A | $\frac{7!}{2! \cdot 5!}$ |
| B | $\frac{7!}{5!}$ |
| C | $\frac{2!}{7! \cdot 5!}$ |



Calculate combinations

12

How many ways can 2 vowels be drawn from this set? Show as a factorial.



A $\frac{4!}{2! \cdot 2!}$

B $\frac{4!}{2!}$

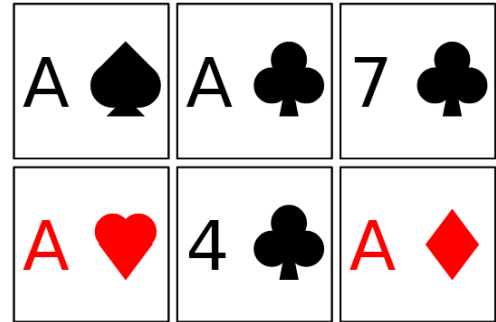
C $\frac{6!}{2! \cdot 4!}$

D $\frac{4!}{3! \cdot 1!}$

E $\frac{2!}{4! \cdot 2!}$

13

How many ways can three Aces be drawn from this set? Show as a factorial.



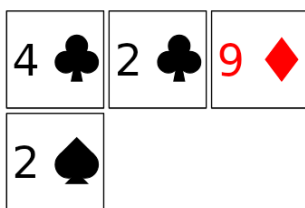
A $\frac{4!}{3! \cdot 1!}$

B $4!$

C $\frac{5!}{2! \cdot 3!}$

14

Calculate the probability of drawing 2 2s. Show as a fraction in binomial (bracket) notation



P(2 2s)

A $\frac{\binom{2}{4}}{\binom{2}{2}}$

B $\frac{\binom{2}{2}}{\binom{2}{4}}$

C $\frac{\binom{2}{2}}{\binom{4}{2}}$

D $\frac{\binom{4}{2}}{\binom{2}{2}}$

15

With a group of 6 options how many ways are there to choose a set of 4 options regardless of order?

With a group of 6 options how many ways are there to choose a set of 4 options regardless of order?

A $\frac{24}{720}$

B $\frac{24}{6}$

C $\frac{720}{48}$

16

$\{5 \text{ choose } 3\}$
 $\binom{5}{3}$

A $\frac{6}{6}$

B $\frac{6}{120}$

C $\frac{120}{12}$