

Probability and Statistics - Probability with Factorials Practice

- 1 Select the correct equivalent to this factorial

$$4!$$

A 1	B $4 \cdot 3 \cdot 2$
C $3 \cdot 2$	D $4 \cdot 3$

- 2 Select the correct equivalent to this factorial

$$4!$$

A 12	B 2
C 24	D $\frac{1}{4}$
E 120	

- 3 Select the correct factorial equivalent to this multiplication

$$5 \cdot 4 \cdot 3 \cdot 2$$

A 7!	B 4!
C 6!	D 5!

- 4 Select the correct formula for this notation

$${}_4\text{C}_2$$

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

- 5 Select the correct value for when this notation is calculated

$${}_6\text{C}_2$$

A $\frac{720}{48}$	B $\frac{720}{24}$
C $\frac{2}{720}$	

- 6 Select the correct notation for this formula

$$\frac{3!}{2! \cdot 1!}$$

A ${}_5\text{C}_3$	B ${}_3\text{B}_2$
C ${}_3\text{C}_2$	

- 7 Select the correct value for when this formula is calculated

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

A $\frac{24}{4}$	B $\frac{24}{2}$
C $\frac{2}{24}$	

- 8 Select the correct description for this notation

$${}_5\text{C}_4$$

A From a group of 5 options how many ways are there to choose 4 options in a specific order?

B Choose 3 options in a specific order from a group of 3 options

C From a group of 5 items select a set of 4 items regardless of order.



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- 9 Select the correct description for this formula

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

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

- A Choose 3 options in a specific order from a group of 4 options
- B From a group of 4 options how many ways are there to choose 3 options in a specific order?
- C Choose a set of 3 items from a group of 4 total items. Ignore the order.

- 10 Select the correct formula for this description

With a group of 6 options how many ways are there to choose a set of 3 options regardless of order?

A $\frac{6!}{3!}$

B $\frac{3!}{6! \cdot 3!}$

C $\frac{6!}{3! \cdot 3!}$

- 11 What is the value of this factorial expression?

$$2!$$

A $\frac{1}{6}$

B 1

C 2

- 12 Select the correct notation for this description

From a group of 5 items select a set of 4 items regardless of order.

A ${}_4C_5$

B ${}_5P_4$

C ${}_5C_4$

- 13 What is the value of this factorial expression?

$$3! \cdot 2!$$

A 1

B 6

C 12

- 14 Select the correct value for when the described situation is calculated

From a group of 6 items select a set of 5 items regardless of order.

A $\frac{720}{1}$

B $\frac{5040}{720}$

C $\frac{720}{120}$

- 15 What is the value of this factorial expression?

$$\frac{4!}{4!}$$

A 1

B $\frac{1}{4}$

C 4

D 12

E 5

- 16 What is the value of this factorial expression?
- $$(6 - 2)!$$

A 2

B 120

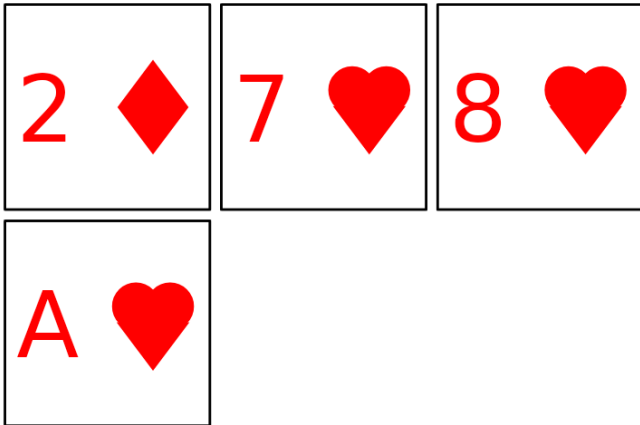
C 4

D 1

E 24

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



A

$$4 \cdot 3 \cdot 2$$

B

$$\frac{4 \cdot 3 \cdot 2}{1 \cdot 2}$$

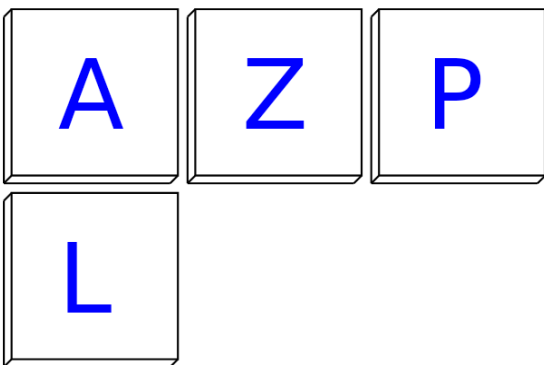
C

$$3 \cdot 2$$

D

$$\frac{4 \cdot 3 \cdot 2}{4 \cdot 3 \cdot 2 \cdot 1}$$

18 How many distinct ways can these letter tiles be ordered? Show as a multiplication.



A

$$3 \cdot 2$$

B

$$\frac{5 \cdot 4 \cdot 3 \cdot 2}{3 \cdot 2}$$

C

$$\frac{4 \cdot 3 \cdot 2}{4 \cdot 3 \cdot 2 \cdot 1}$$

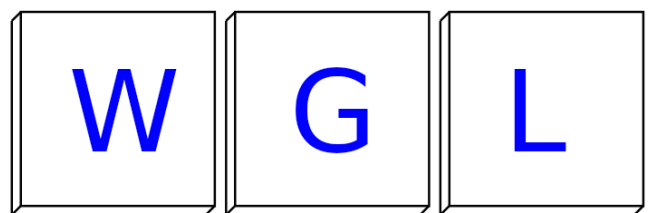
D

$$\frac{4 \cdot 3 \cdot 2}{1 \cdot 2}$$

E

$$4 \cdot 3 \cdot 2$$

19 How many distinct ways can these letter tiles be ordered? Show as a factorial.



A

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

B

$$\frac{3!}{3! \cdot 0!}$$

C

$$3!$$

D

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

E

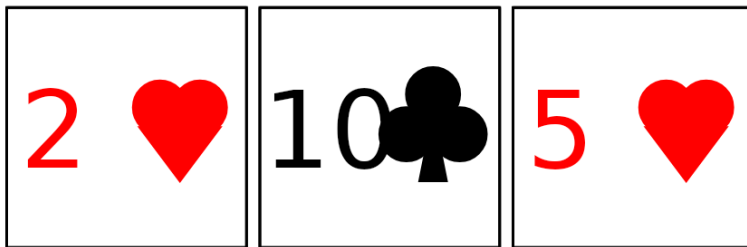
$$\frac{3!}{1! \cdot 2!}$$

F

$$5!$$

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



A

$$3!$$

B

$$\frac{5!}{2!}$$

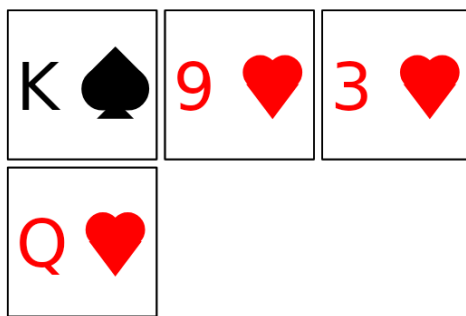
C

$$\frac{3!}{3! \cdot 0!}$$

D

$$\frac{3!}{3!}$$

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



A

$$3!$$

B

$$\frac{4!}{4! \cdot 0!}$$

C

$$4!$$

D

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

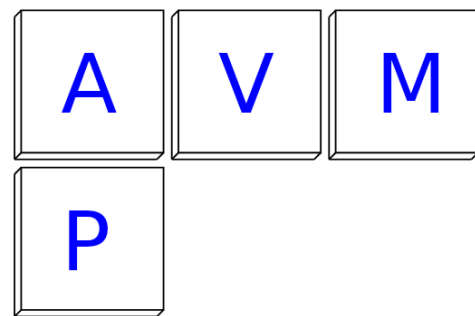
E

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

F

$$\frac{4!}{3!}$$

22 How many distinct ways can these letter tiles be ordered? Show as a factorial.



A

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

B

$$5!$$

C

$$4!$$

D

$$\frac{4!}{1! \cdot 2!}$$

E

$$\frac{4!}{4! \cdot 0!}$$

F

$$3!$$



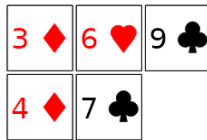
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23 What is the value of this factorial expression?

$$3! \cdot (6 - 4)!$$

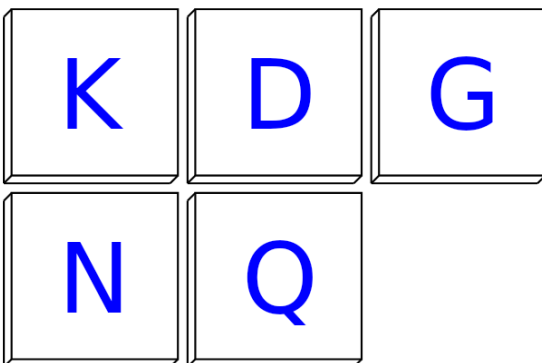
A	144	B	12
C	6	D	1

25 How many distinct ways can these cards be ordered?



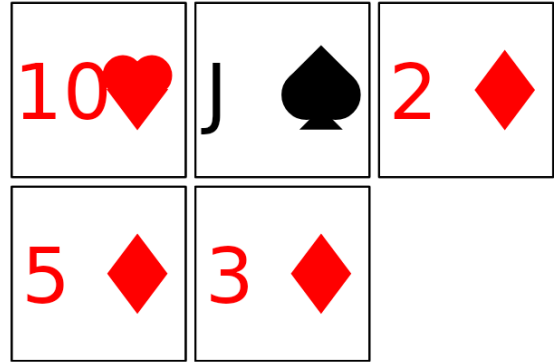
A	10	B	4	C	120
D	19	E	30	F	1

26 How many distinct ways can these letter tiles be ordered? Show as a multiplication.



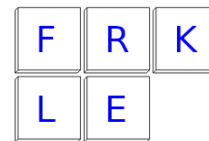
A	$\frac{5 \cdot 4 \cdot 3 \cdot 2}{1 \cdot 3 \cdot 2}$	B	$5 \cdot 4 \cdot 3 \cdot 2$
C	$3 \cdot 2$	D	$\frac{5 \cdot 4 \cdot 3 \cdot 2}{1 \cdot 2}$
E	$\frac{5 \cdot 4 \cdot 3 \cdot 2}{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}$	F	$6 \cdot 5 \cdot 4 \cdot 3 \cdot 2$

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



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

27 How many distinct ways can these letter tiles be ordered?



A	30	B	1	C	5
D	9	E	120	F	10

28 What is the value of this factorial expression?

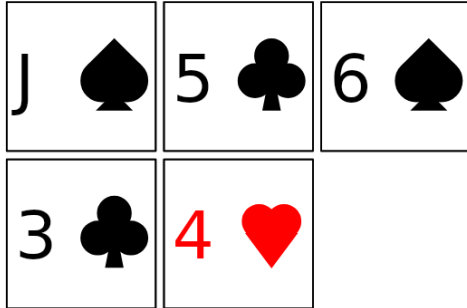
$$\frac{1}{4!}$$

A	$\frac{1}{24}$	B	$\frac{1}{4}$
C	$\frac{1}{6}$	D	1



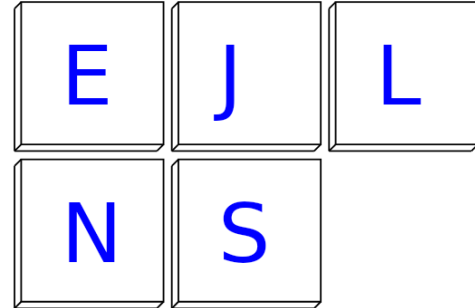
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29 How many distinct ways can these cards be ordered? Show as a factorial.



- | | |
|----------------------------|-------------------|
| A $\frac{5!}{5! \cdot 0!}$ | B $\frac{5!}{3!}$ |
| C $\frac{5!}{1! \cdot 2!}$ | D $5!$ |
| E $\frac{7!}{4!}$ | F $4!$ |

30 How many distinct ways can these letter tiles be ordered? Show as a factorial.



- | | |
|-------------------|----------------------------|
| A $\frac{5!}{2!}$ | B $\frac{5!}{1! \cdot 3!}$ |
| C $5!$ | D $\frac{5!}{5! \cdot 0!}$ |
| E $4!$ | |

31 What is the value of this factorial expression?

$$\frac{1}{2! \cdot 5!}$$

- | | | |
|------------------|-------------------|------------------|
| A $\frac{1}{48}$ | B $\frac{1}{240}$ | C $\frac{1}{40}$ |
| D $\frac{1}{24}$ | E $\frac{1}{12}$ | |

32 What is the value of this factorial expression?

$$\frac{1}{(6 - 5)!}$$

- | | |
|-------|-----------------|
| A 240 | B 120 |
| C 1 | D $\frac{1}{2}$ |
| E 24 | |

33 What is the value of this factorial expression?

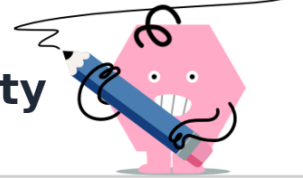
$$\frac{1}{4! \cdot (6 - 4)!}$$

- | | | |
|------------------|-----------------|------------------|
| A $\frac{1}{24}$ | B $\frac{1}{6}$ | C $\frac{1}{48}$ |
| D $\frac{1}{12}$ | E 1 | |

34 What is the value of this factorial expression?

$$\frac{11! + 10!}{10!}$$

- | | |
|------|------|
| A 20 | B 2 |
| C 19 | D 12 |



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35 What is the value of this factorial expression?

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

A	2	B	12
C	$\frac{3}{2}$	D	$\frac{1}{2}$

36 What is the value of this factorial expression?

$$\frac{2!}{(2-2)!}$$

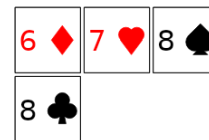
A	$\frac{1}{3}$	B	2
C	1		

37 What is the value of this factorial expression?

$$\frac{2!}{2! \cdot (5-5)!}$$

A	$\frac{1}{2}$	B	2
C	1	D	120

38 How many ways can these cards be arranged to still be arranged smallest to largest?



A	24	B	2	C	6
D	12	E	4		

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

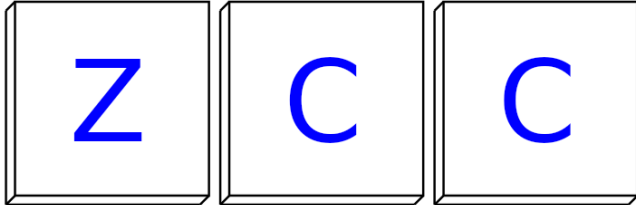


A	$\frac{3!}{2!}$
B	$\frac{4!}{2! \cdot 2!}$
C	$\frac{3!}{3! \cdot 0!}$



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40 How many distinct ways can these letter tiles be ordered? Show as a factorial.



A $\frac{3!}{2! \cdot 2!}$

B $\frac{5!}{2!}$

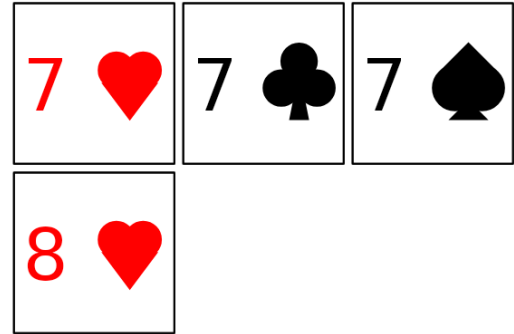
C $\frac{4!}{2!}$

D $\frac{3!}{2!}$

E $\frac{3!}{3!}$

F $\frac{3!}{4!}$

41 How many ways can these cards be arranged to still be arranged smallest to largest? Show as a multiplication.



A $3 \cdot 2$

B $4 \cdot 3 \cdot 2$

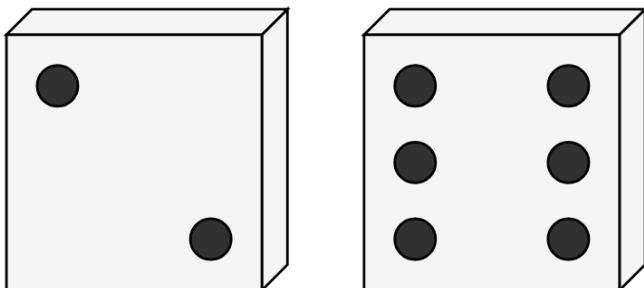
C $3 \cdot 2 \cdot 2$

D $\frac{2}{3 \cdot 2 \cdot 1}$

E $3 \cdot 2 \cdot 3 \cdot 2$

F $\frac{1}{3 \cdot 2 \cdot 1}$

42 What is the equation for the chance of rolling at least one 2 on these dice?



A $\frac{1}{6}$

B $\frac{1}{6} + \frac{1}{6} - \frac{1}{6} \cdot \frac{1}{6}$

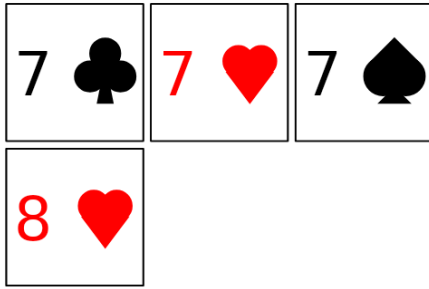
C $\frac{1}{6} \cdot \frac{1}{6}$

D $1 - \frac{1}{6} \cdot \frac{1}{6}$



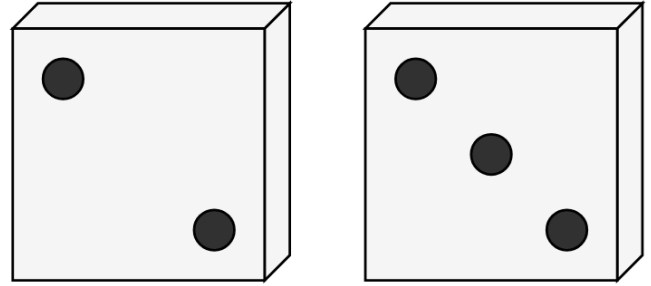
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- 43** How many ways can these cards be arranged to still be arranged smallest to largest? Show as a factorial.



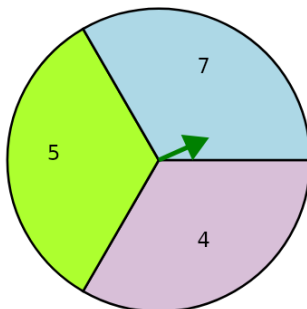
A	$3! \cdot 3!$	B	$3!$
C	$5!$	D	$\frac{2!}{3! \cdot 1!}$
E	$3! \cdot 2!$	F	$\frac{1}{3! \cdot 1!}$

- 44** What is the chance of rolling at least one 4 on these dice?



A	$\frac{5}{33}$	B	$\frac{2}{51}$
C	$\frac{23}{22}$	D	$\frac{12}{12}$
E	$\frac{14}{35}$	F	$\frac{11}{36}$

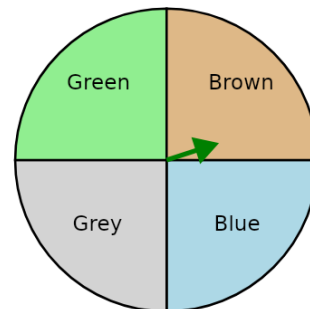
- 45** Calculate the probability of spinning 4 at least once, given two spins. Show as an equation



P(4 in 2 spins)

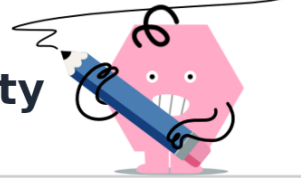
A	$\frac{1}{3} + \frac{0}{4} \cdot \frac{1}{2}$	B	$\frac{4}{5} - \frac{3}{5} \cdot \frac{1}{1}$
C	$\frac{1}{5} - \frac{1}{1} \cdot \frac{1}{5}$	D	$\frac{1}{2} - \frac{3}{4} \cdot \frac{7}{5}$
E	$\frac{1}{3} + \frac{1}{3} - \frac{1}{3} \cdot \frac{1}{3}$		

- 46** Calculate the probability of spinning Grey at least once, given two spins. Show as an equation



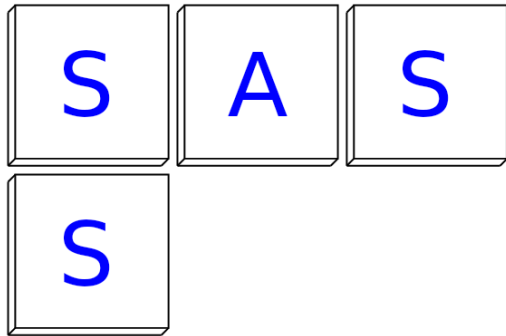
P(Grey in 2 spins)

A	$\frac{1}{4} + \frac{1}{4} - \frac{1}{4} \cdot \frac{1}{4}$	B	$\frac{2}{3} + \frac{1}{3} \cdot \frac{1}{2}$
C	$\frac{7}{2} - \frac{6}{6} \cdot \frac{4}{5}$	D	$\frac{4}{6} - \frac{2}{5} \cdot \frac{8}{5}$
E	$\frac{8}{2} + \frac{1}{3} \cdot \frac{8}{6}$		



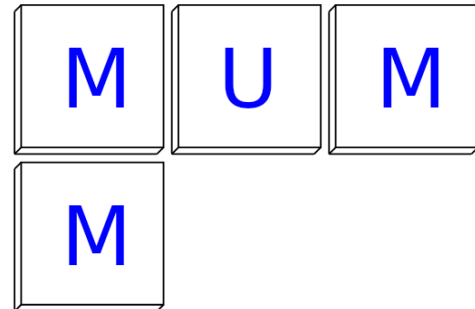
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47 How many ways can these letter tiles be ordered to spell 'SASS'? Show as a multiplication.



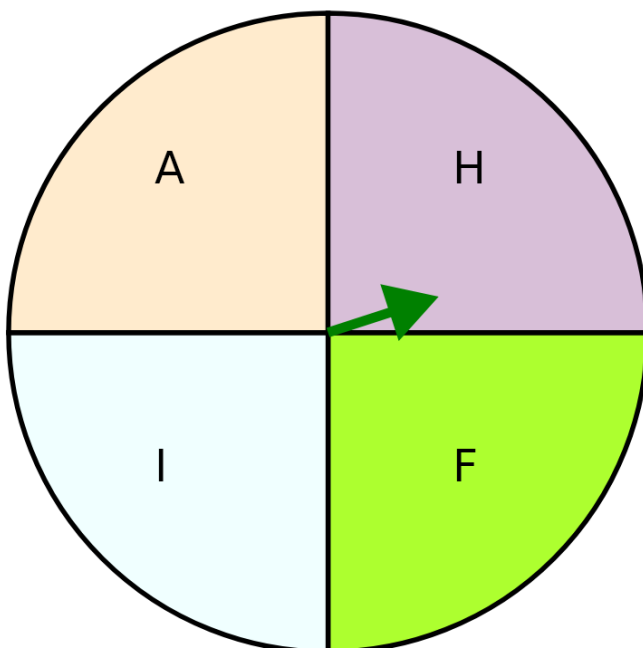
A	$4 \cdot 3 \cdot 2$	B	$3 \cdot 2 \cdot 3 \cdot 2$
C	$\frac{2}{3 \cdot 2 \cdot 1}$	D	$3 \cdot 2$
E	$\frac{1}{3 \cdot 2 \cdot 1}$	F	$3 \cdot 2 \cdot 2$

48 How many ways can these letter tiles be ordered to spell 'MUMM'? Show as a factorial.



A	$\frac{2!}{3! \cdot 1!}$	B	$3!$
C	$3! \cdot 2!$	D	$5!$
E	$\frac{1}{3! \cdot 1!}$	F	$4!$

49 Calculate the probability of spinning I at least once, given two spins. Show as a fraction



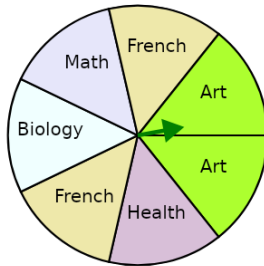
P(I in 2 spins)

A	$\frac{7}{16}$
B	$\frac{9}{14}$
C	$\frac{10}{18}$
D	$\frac{4}{17}$



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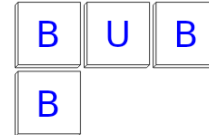
50 Calculate the probability of spinning Biology at least once, given two spins. Show as a fraction



P(Biology in 2 spins)

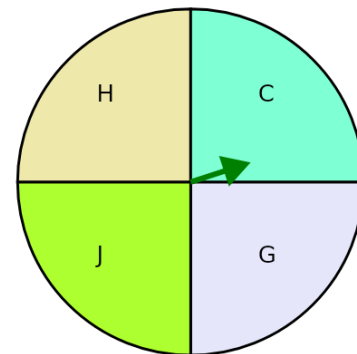
A	$\frac{8}{48}$	B	$\frac{12}{51}$
C	$\frac{13}{49}$	D	$\frac{10}{47}$
E	$\frac{17}{47}$		

51 How many ways can these letter tiles be ordered to spell 'BUBB'?



A	6	B	120	C	24
D	36	E	12		

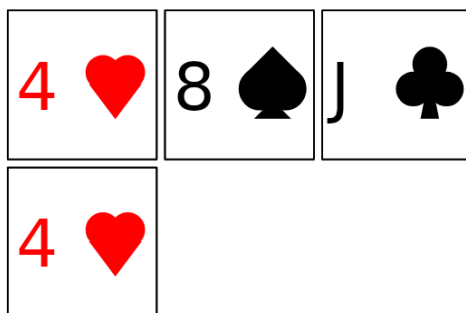
52 Calculate the probability of spinning H at least once, given two spins. Show as a decimal



P(H in 2 spins)

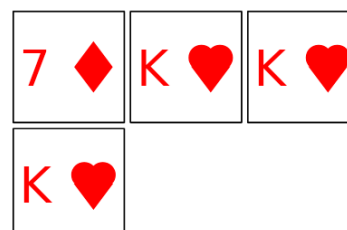
A	0.42	B	0.52	C	0.54
D	0.41	E	0.43	F	0.44

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



A	$\frac{4 \cdot 3 \cdot 2}{2 \cdot 2}$	B	$\frac{4 \cdot 3 \cdot 2}{2}$
C	$\frac{3 \cdot 2}{2}$	D	$\frac{4 \cdot 3 \cdot 2}{2 \cdot 3 \cdot 2}$
E	$\frac{4 \cdot 3 \cdot 2}{4 \cdot 3 \cdot 2 \cdot 1}$		

54 How many distinct ways can these cards be ordered?

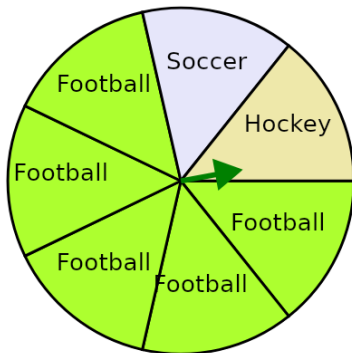


A	2
B	19
C	0
D	4



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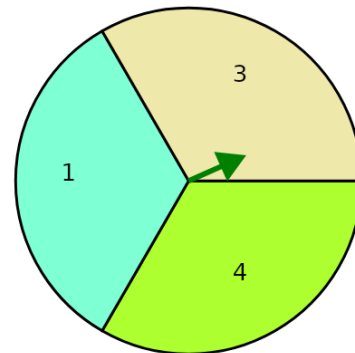
55 Calculate the probability of spinning Football at least once, given two spins. Show as a decimal



P(Football in 2 spins)

A 1	B 0.96	C 0.88
D 0.93	E 0.94	F 0.92

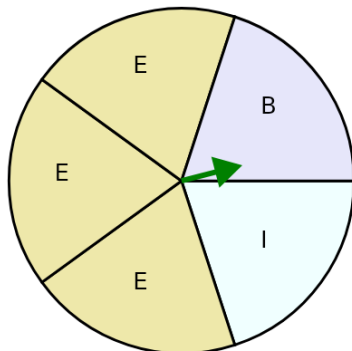
56 Calculate the probability of spinning 3 at least once, given two spins. Show as a percent



P(3 in 2 spins)

A 56%	B 125%	C 57%
D 42%	E 0%	F 22%

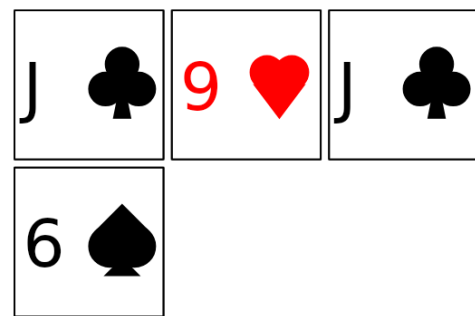
57 Calculate the probability of spinning E at least once, given two spins. Show as a percent



P(E in 2 spins)

A 78%	B 100%	C 72%
D 80%	E 84%	F 68%

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

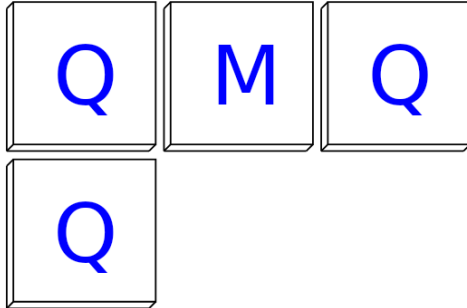


A $\frac{6!}{3! \cdot 2!}$	B $\frac{3!}{2!}$
C $\frac{4!}{4! \cdot 0!}$	D $\frac{4!}{2!}$
E $\frac{4!}{3!}$	



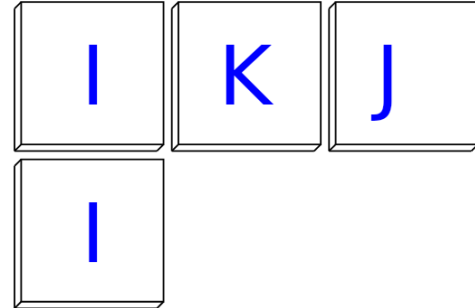
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59 How many distinct ways can these letter tiles be ordered? Show as a multiplication.



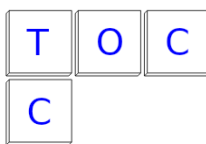
A	$\frac{3 \cdot 2}{3 \cdot 2}$	B	$\frac{5 \cdot 4 \cdot 3 \cdot 2}{3 \cdot 2 \cdot 3 \cdot 2}$
C	$\frac{4 \cdot 3 \cdot 2}{3 \cdot 2}$	D	$\frac{4 \cdot 3 \cdot 2}{4 \cdot 3 \cdot 2 \cdot 1}$
E	$\frac{4 \cdot 3 \cdot 2}{3 \cdot 2 \cdot 2}$	F	$\frac{5 \cdot 4 \cdot 3 \cdot 2}{3 \cdot 2}$

60 How many distinct ways can these letter tiles be ordered? Show as a factorial.



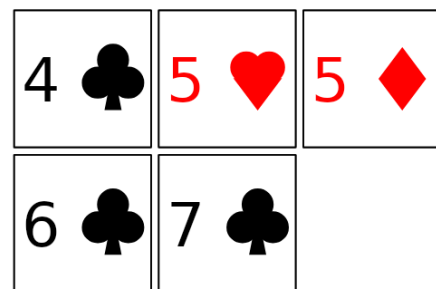
A	$\frac{4!}{2! \cdot 2!}$	B	$\frac{4!}{3!}$
C	$\frac{4!}{4! \cdot 0!}$	D	$\frac{4!}{2! \cdot 3!}$
E	$\frac{3!}{2!}$	F	$\frac{4!}{2!}$

61 How many distinct ways can these letter tiles be ordered?



A	13	B	16	C	2
D	5	E	12	F	8

62 How many ways can these cards be arranged to still be arranged smallest to largest? Show as a multiplication.



A	$2 \cdot 3 \cdot 2$	B	$4 \cdot 3 \cdot 2$
C	$2 \cdot 2$	D	2
E	$\frac{1}{2 \cdot 1}$	F	$\frac{2}{2 \cdot 1}$

63 How many ways can these cards be arranged to still be arranged smallest to largest?

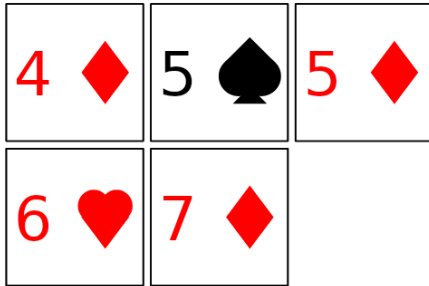


A	2	B	6	C	12
D	4	E	24		



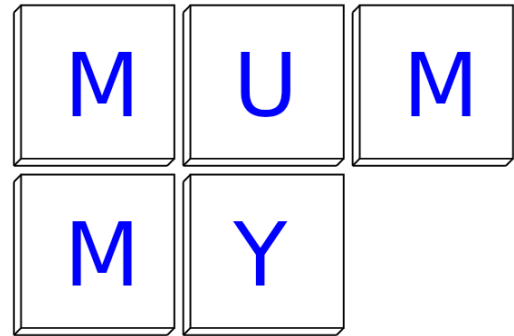
Probability and Statistics - Probability with Factorials Practice

64 How many ways can these cards be arranged to still be arranged smallest to largest? Show as a factorial.



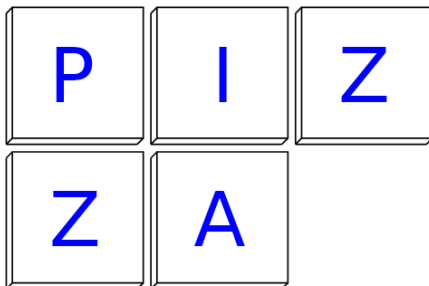
A	$2! \cdot 3!$	B	$\frac{1}{2! \cdot 1!}$
C	$\frac{2!}{2! \cdot 1!}$	D	$4!$
E	$2! \cdot 2!$	F	$2!$

65 How many ways can these letter tiles be ordered to spell 'MUMMY'? Show as a multiplication.



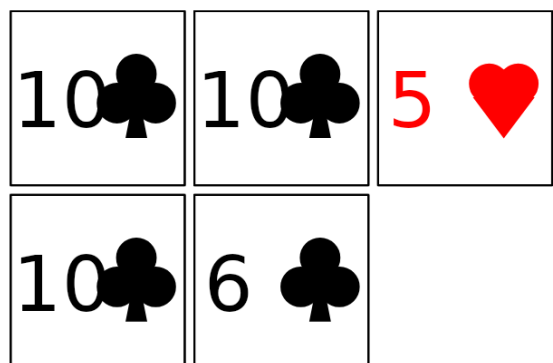
A	$4 \cdot 3 \cdot 2$	B	$5 \cdot 4 \cdot 3 \cdot 2$
C	$3 \cdot 2 \cdot 3 \cdot 2$	D	$3 \cdot 2$
E	$\frac{1}{3 \cdot 2 \cdot 1}$	F	$\frac{2}{3 \cdot 2 \cdot 1}$

66 How many ways can these letter tiles be ordered to spell 'PIZZA'? Show as a factorial.



A	$2!$	B	$3!$
C	$2! \cdot 2!$	D	$4!$
E	$\frac{2!}{2! \cdot 1!}$	F	$\frac{1}{2! \cdot 1!}$

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

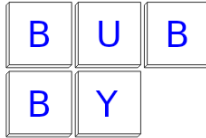


A	$\frac{5 \cdot 4 \cdot 3 \cdot 2}{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}$	B	$\frac{4 \cdot 3 \cdot 2}{3 \cdot 2}$
C	$\frac{5 \cdot 4 \cdot 3 \cdot 2}{3 \cdot 2}$	D	$\frac{5 \cdot 4 \cdot 3 \cdot 2}{4 \cdot 3 \cdot 2}$
E	$\frac{5 \cdot 4 \cdot 3 \cdot 2}{3 \cdot 2 \cdot 3 \cdot 2}$		



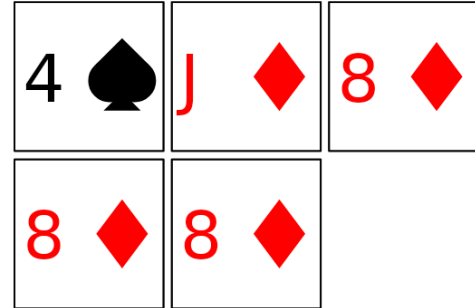
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68 How many ways can these letter tiles be ordered to spell 'BUBBY'?



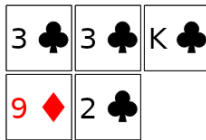
A	6	B	36	C	120
D	12	E	24		

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



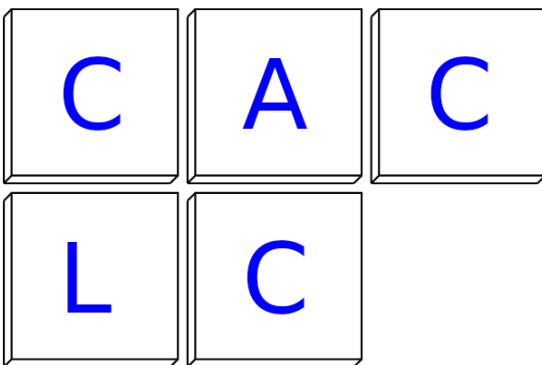
A	$\frac{3!}{3!}$	B	$\frac{5!}{3! \cdot 3!}$
C	$\frac{5!}{5! \cdot 0!}$	D	$\frac{5!}{3!}$
E	$\frac{6!}{3!}$	F	$\frac{5!}{4!}$

70 How many distinct ways can these cards be ordered?



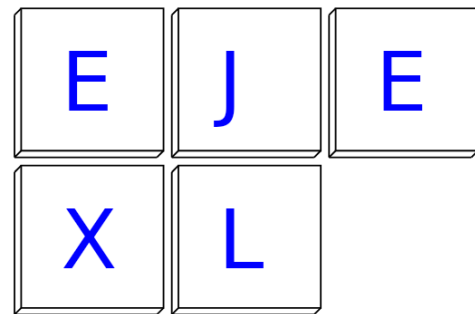
A	0	B	3	C	12
D	5	E	60	F	13

71 How many distinct ways can these letter tiles be ordered? Show as a multiplication.



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

72 How many distinct ways can these letter tiles be ordered? Show as a factorial.



A	$\frac{5!}{2!}$	B	$\frac{5!}{2! \cdot 2!}$
C	$\frac{5!}{5! \cdot 0!}$	D	$\frac{4!}{2!}$
E	$\frac{5!}{2! \cdot 3!}$		