



Probability and Statistics - Permutations and Combinations Calculating - Practice

- 1 What is the value of this probability expression?

$$\frac{1}{6}P_4$$

A $\frac{1}{12}$	B $\frac{1}{30}$	C 1
D $\frac{1}{360}$	E $\frac{1}{24}$	

- 2 What is the value of this probability expression?

$$\frac{1}{3}C_3$$

A 1	B $\frac{1}{3}$
C 100	D 10

- 3 What is the value of this probability expression?

$$\frac{1}{\binom{4}{3}}$$

A $\frac{1}{20}$	B $\frac{1}{40}$
C 1	D $\frac{1}{4}$

- 4 What is the value of this probability expression?

$$\frac{{}_3P_3}{{}_5P_3}$$

A 6	B $\frac{3}{5}$
C $\frac{1}{10}$	D $\frac{1}{60}$

- 5 What is the value of this probability expression?

$$\frac{{}_3C_3}{{}_5C_5}$$

A 20	B 10	C $\frac{1}{4}$
D 1	E 15	

- 6 What is the value of this probability expression?

$$\frac{\binom{6}{2}}{\binom{4}{4}}$$

A 6	B 1	C $\frac{2}{5}$
D 15	E $\frac{3}{2}$	

- 7 What is the value of this probability expression?

$$\frac{1}{({}_4C_2) \cdot ({}_5C_5)}$$

A 50	B $\frac{10}{3}$
C 1	D $\frac{1}{6}$

- 8 What is the value of this probability expression?

$$\frac{1}{\binom{3}{2} \cdot \binom{6}{3}}$$

A $\frac{1}{300}$	B $\frac{1}{20}$
C $\frac{1}{3}$	D $\frac{1}{60}$



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- 9** What is the value of this probability expression?

$$\frac{1}{({}_2P_2) \cdot ({}_5P_4)}$$

A

1

B

 $\frac{1}{240}$

C

 $\frac{1}{20}$

D

 $\frac{1}{120}$

E

360

- 10** What is the value of this probability expression?

$$\frac{{}_6P_4}{({}_4P_2) \cdot ({}_2P_2)}$$

A

1

B

15

C

 $\frac{1}{24}$

D

6

- 11** What is the value of this probability expression?

$$\frac{{}_5C_2}{({}_4C_4) \cdot ({}_6C_5)}$$

A

 $\frac{5}{3}$

B

15

C

10

D

 $\frac{1}{6}$

E

1

- 12** What is the value of this probability expression?

$$\frac{{}_5C_3}{({}_6C_4) \cdot ({}_5C_4)}$$

A

2

B

 $\frac{1}{15}$

C

 $\frac{2}{45}$

D

 $\frac{2}{15}$

- 14** What is the value of this probability expression?

$$\frac{({}_6C_5) \cdot ({}_2C_2)}{{}_5C_5}$$

A

 $\frac{1}{5}$

B

15

C

6

D

1

- 13** What is the value of this probability expression?

$$\frac{({}_5P_2) \cdot ({}_4P_3)}{{}_3P_3}$$

A

360

B

80

C

 $\frac{4}{3}$

D

160

E

1

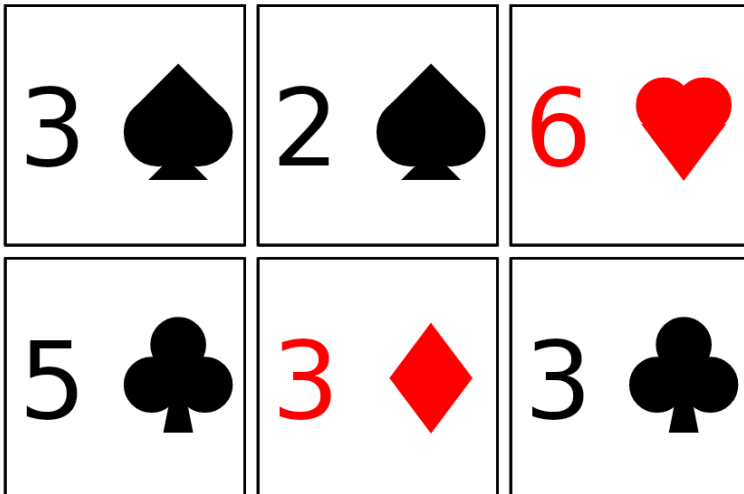
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15 What is the value of this probability expression?

$$\frac{\binom{6}{2} \cdot \binom{5}{4}}{\binom{6}{2}}$$

A 1	B 2	C $\frac{10}{3}$
D 10	E 5	

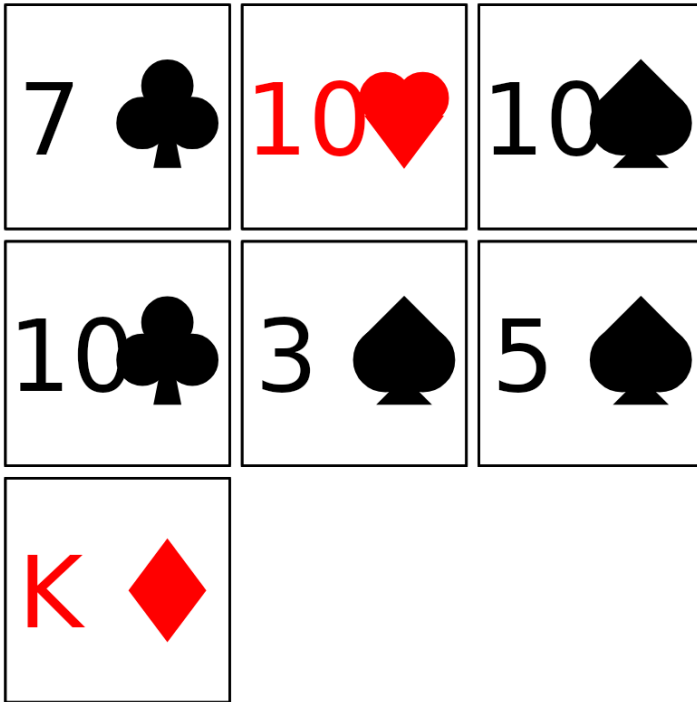
16 How many total ways can 2 cards be drawn from this set? Show as a factorial.



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

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17 How many ways can two 10s be drawn from this set? Show as a factorial.



A

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

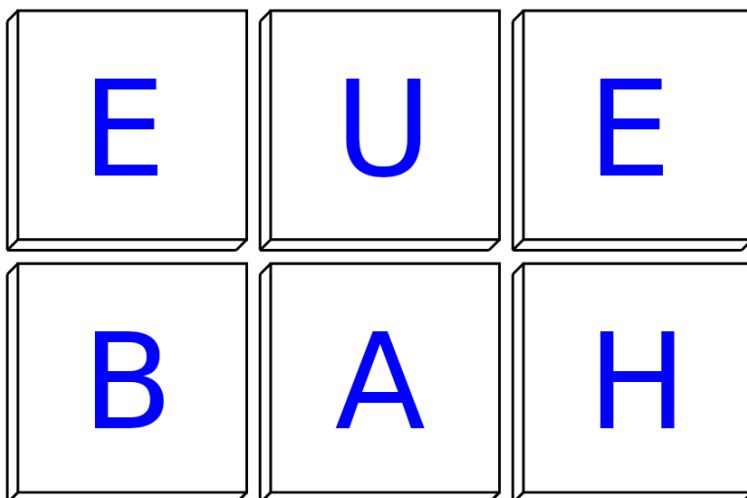
B

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

C

$$3!$$

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



A

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

B

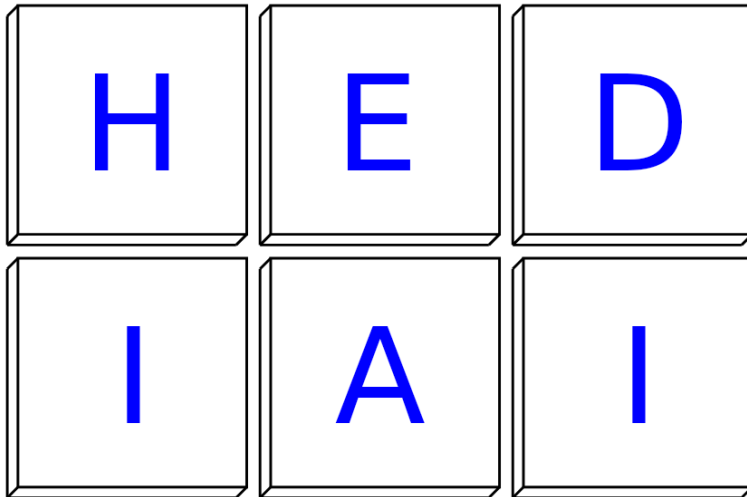
$$\frac{6!}{4!}$$

C

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

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



A

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

B

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

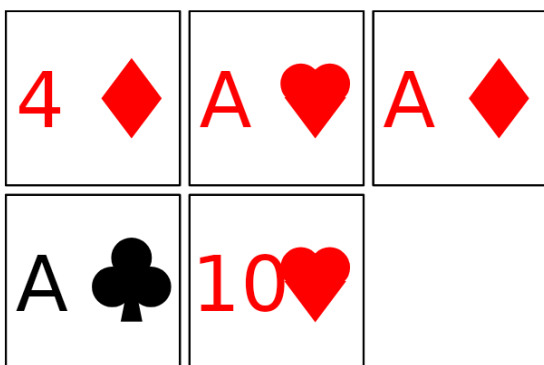
C

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

D

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

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



A

$${}_5P_2$$

B

$${}_5C_2$$

C

$${}_2C_5$$

D

$${}_5B_2$$

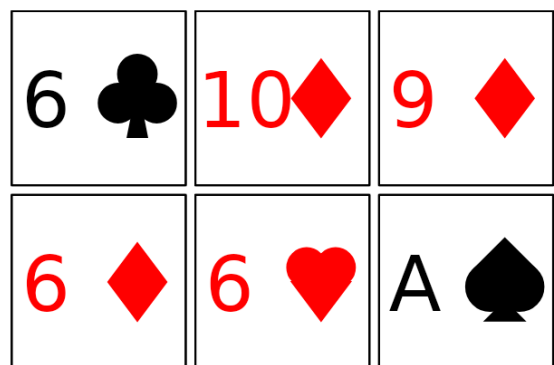
E

$${}_5R_2$$

F

$${}_3C_2$$

21 How many ways can two 6s be drawn from this set? Show in nCm notation.



A

$${}_3C_2$$

B

$${}_2C_3$$

C

$${}_3B_2$$

D

$${}_5C_2$$

E

$${}_3P_2$$

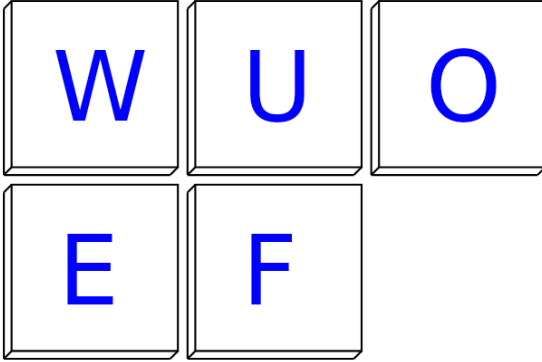
F

$${}_3R_2$$



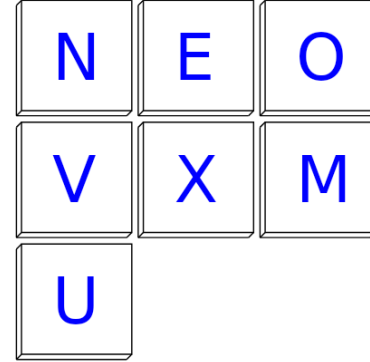
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22 How many total ways can 2 letter tiles be drawn from this set? Show in nCm notation.



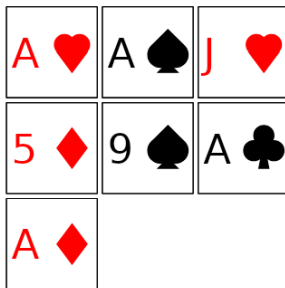
A	${}_5B_2$	B	${}_5R_2$
C	${}_4C_3$	D	${}_5P_2$
E	${}_2C_5$	F	${}_5C_2$

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



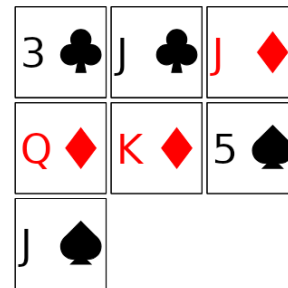
A	${}_3P_2$	B	${}_5C_3$
C	${}_2C_3$	D	${}_3C_2$
E	${}_4C_3$	F	${}_3R_2$

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



A	$\binom{9}{3}$	B	$\binom{5}{5}$
C	$\binom{7}{3}$	D	$\binom{9}{2}$
E	$\binom{7}{5}$	F	$\binom{3}{7}$

25 How many ways can two Jacks be drawn from this set? Show as a binomial coefficient (bracket notation).

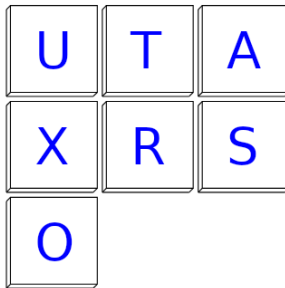


A	$\binom{2}{3}$	B	$\binom{3}{3}$
C	$\binom{4}{4}$	D	$\binom{5}{3}$
E	$\binom{3}{2}$	F	$\binom{4}{2}$



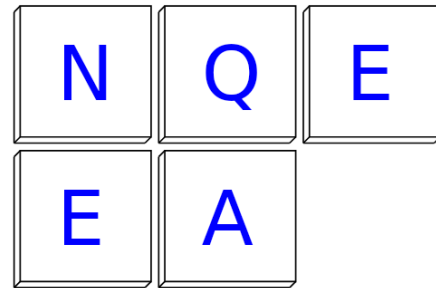
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26 How many total ways can 2 letter tiles be drawn from this set? Show as a binomial coefficient (bracket notation).



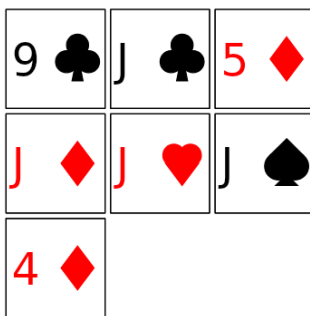
A	$\binom{5}{2}$	B	$\binom{9}{2}$
C	$\binom{7}{2}$	D	$\binom{8}{3}$
E	$\binom{2}{7}$	F	$\binom{5}{4}$

27 How many ways can 2 vowels be drawn from this set? Show as a binomial coefficient (bracket notation).



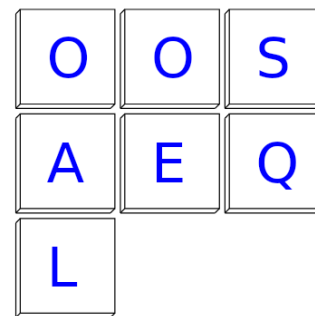
A	$\binom{3}{2}$	B	$\binom{2}{3}$
C	$\binom{5}{2}$	D	$\binom{5}{4}$
E	$\binom{4}{2}$	F	$\binom{4}{3}$

28 What's the chance of drawing three Jacks from this set? Show in nCm notation.



A	$\frac{{}_3C_4}{{}_9C_3}$	B	$\frac{{}_4C_3}{{}_7C_3}$
C	$\frac{{}_4B_3}{{}_7C_3}$	D	$\frac{{}_4P_3}{{}_3C_7}$
E	$\frac{{}_3C_4}{{}_7P_3}$	F	$\frac{{}_4P_3}{{}_7P_3}$

29 What's the chance of drawing 2 vowels from this set? Show in nCm notation.

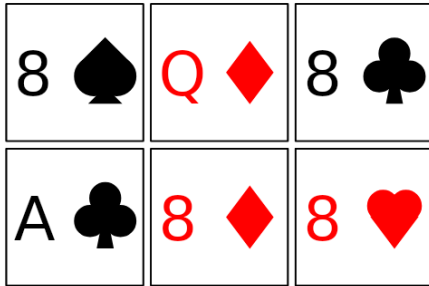


A	$\frac{{}_6C_2}{{}_2C_7}$	B	$\frac{{}_2C_4}{{}_7C_3}$
C	$\frac{{}_4B_2}{{}_7P_2}$	D	$\frac{{}_4P_2}{{}_7B_2}$
E	$\frac{{}_2C_4}{{}_7P_2}$	F	$\frac{{}_4C_2}{{}_7C_2}$



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30 What's the chance of drawing three 8s from this set? Show as binomial coefficients (bracket notation).



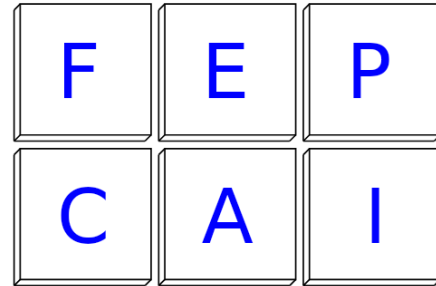
A $\frac{\binom{4}{3}}{\binom{6}{3}}$

B $\frac{\binom{5}{5}}{\binom{4}{3}}$

C $\frac{\binom{3}{3}}{\binom{8}{2}}$

D $\frac{\binom{3}{3}}{\binom{3}{6}}$

31 What's the chance of drawing 2 vowels from this set? Show as binomial coefficients (bracket notation).



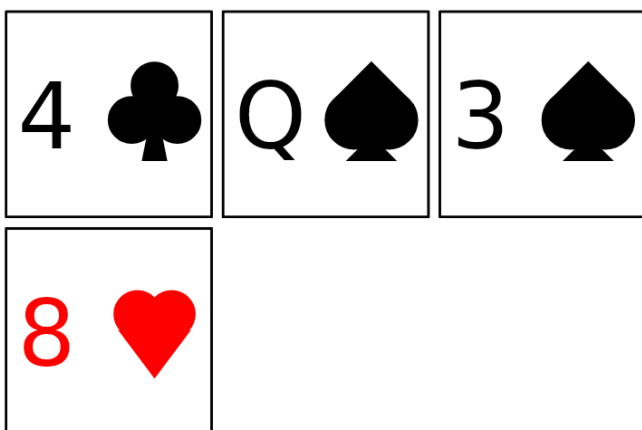
A $\frac{\binom{3}{3}}{\binom{4}{3}}$

B $\frac{\binom{2}{3}}{\binom{4}{4}}$

C $\frac{\binom{2}{3}}{\binom{5}{2}}$

D $\frac{\binom{3}{2}}{\binom{6}{2}}$

32 Calculate the probability of drawing 2 Spades. Show as a description of the equation needed



A

$$\frac{\text{ways to draw 2 cards from 4}}{\text{ways to draw 2 Spades from 2 options}}$$

B

$$\frac{\text{ways to draw 2 Spades from 2 options}}{\text{ways to draw 2 cards from 4}}$$

C

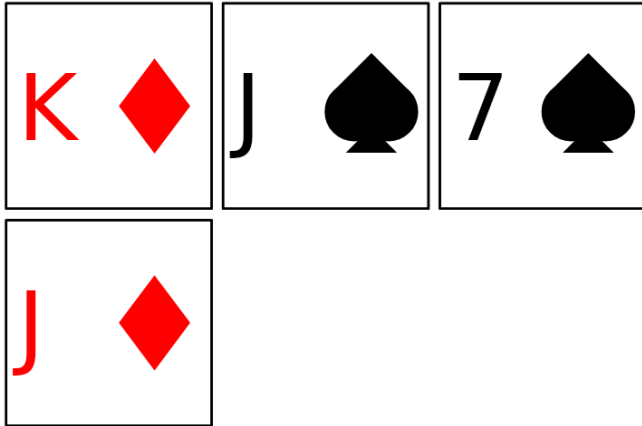
$$\frac{\text{ways to draw 2 Spades from 2 options}}{\text{ways to order 4 cards}}$$

P(2 Spades)



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33 Calculate the probability of drawing 2 Diamonds. Show as a description of the equation needed



A

$$\frac{\text{ways to draw 2 Diamonds from 2 options}}{\text{ways to order 4 cards}}$$

B

$$\frac{\text{ways to draw 2 cards from 4}}{\text{ways to draw 2 Diamonds from 2 options}}$$

C

$$\frac{\text{ways to draw 2 Diamonds from 2 options}}{\text{ways to draw 2 cards from 4}}$$

P(2 Diamonds)

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



P(2 Hearts)

A $\frac{{}_3C_4}{{}_4C_4}$

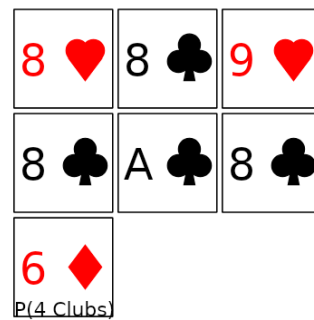
B $\frac{{}_2C_3}{{}_2C_2}$

C $\frac{{}_2C_2}{{}_3C_2}$

D $\frac{{}_2C_2}{{}_2C_3}$

E $\frac{{}_2C_3}{{}_4C_3}$

35 Calculate the probability of drawing 4 Clubs. Show as a fraction in nCm form



P(4 Clubs)

A $\frac{{}_6C_5}{{}_9C_5}$

B $\frac{{}_4C_4}{{}_7C_4}$

C $\frac{{}_4P_4}{{}_7P_4}$

D $\frac{{}_4C_4}{{}_4C_7}$

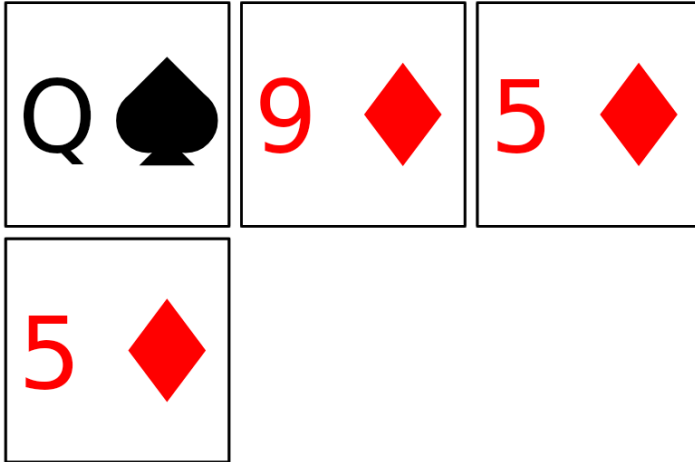
E $\frac{{}_6C_4}{{}_8C_4}$



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36 Calculate the probability of drawing 2 5s. Show as a fraction in binomial (bracket) notation



P(2 5s)

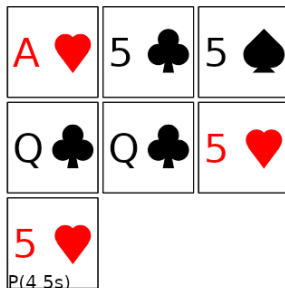
A $\frac{\binom{2}{2}}{\binom{2}{4}}$

B $\frac{\binom{4}{4}}{\binom{6}{4}}$

C $\frac{\binom{4}{2}}{\binom{6}{2}}$

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

37 Calculate the probability of drawing 4 5s. Show as a fraction in binomial (bracket) notation



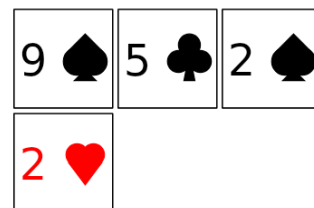
A $\frac{\binom{7}{4}}{\binom{4}{4}}$

B $\frac{\binom{8}{4}}{\binom{11}{4}}$

C $\frac{\binom{4}{4}}{\binom{4}{7}}$

D $\frac{\binom{4}{4}}{\binom{7}{4}}$

38 Calculate the probability of drawing 2 2s. Show as a fraction



P(2 2s)

A $\frac{2}{12}$

B $\frac{5}{2}$

C $\frac{8}{1}$

D $\frac{16}{4}$

E $\frac{3}{5}$