

家里有三双黑筷子，一双红筷子，求随机拿一双红黑筷子的概率有多大？

$$P = \frac{C_2^1 C_6^1}{C_8^2} = \frac{2 \times 6}{\frac{8!}{2! \times 6!}} = \frac{12}{\frac{8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2}{2 \times (6 \times 5 \times 4 \times 3 \times 2)}} = \frac{3}{7} = 42.86\%$$

```
Python 3.7.4 Shell
File Edit Shell Debug Options
Window Help
AA,AB,AC,AD,AE,AF,AG,
AH,BA,BB,BC,BD,BE,BF,
BG,BH,CA,CB,CC,CD,CE,
CF,CG,CH,DA,DB,DC,DD,
DE,DF,DG,DH,EA,EB,EC,
ED,EE,EF,EG,EH,FA,FB,
FC,FD,FE,FF,FG,FH,GA,
GB,GC,GD,GE,GF,GG,GH,
HA,HB,HC,HD,HE,HF,HG,
HH,

countNum=: 64
>>>
= RESTART: D:/Users/21/Downloads/4.学习/python/笛卡尔乘机/组合.py
py =
AB AC AD AE AF AG AH
BC BD BE BF BG BH CD
CE CF CG CH DE DF DG
DH EF EG EH FG FH GH

countNum=: 28
>>> |

排列组合.py - D:/Users/21/Downloads/4.学习/python/笛卡尔乘机/排列组合.py (3.7.4)
File Edit Format Run Options Window Help
import itertools
countNum = 0
for i in itertools.product('ABCDEFGH', repeat = 2):
    print(''.join(i),end=" ")
    countNum += 1
print('\n')
print("countNum=: ", countNum)
Ln: 7 Col: 0

组合.py - D:/Users/21/Downloads/4.学习/python/笛卡尔乘机/组合.py (3.7.4)
File Edit Format Run Options Window Help
import itertools
countNum = 0
for i in itertools.combinations('ABCDEFGH', 2):
    print(''.join(i),end=" ")
    countNum += 1
print('\n')
print("countNum=: ", countNum)
Ln: 4 Col: 29
```

按照穷举法：数出组合中只带 A 不带 B 的一双筷子 6，以及只带 B 不带 A 的一双筷子 6，除以总数，得 $12/28=3/7$