In 14

```python
# D-H算法函数
def D_H(p, g, A, B):
    # 输入：p, g, A, B
    # 输出：两人分别算出的Ks
    alpha = g ** A % p
    beta = g ** B % p
    Ks1 = beta ** A % p
    Ks2 = alpha ** B % p
    return Ks1, Ks2
# example
D_H(11, 7, 3, 5)
```

Out 14

```
(10, 10)
```

In 8

```python
# 创建p,g对列表
p_g_l = [{'p': 101, 'g': 2}, {'p': 103, 'g': 5}, {'p': 107, 'g': 2}, {'p': 109, 'g': 6}, {'p': 113, 'g': 3},
         {'p': 127, 'g': 3}, {'p': 131, 'g': 2}, {'p': 137, 'g': 3}, {'p': 139, 'g': 2}, {'p': 149, 'g': 2},
         {'p': 151, 'g': 6}, {'p': 157, 'g': 5}, {'p': 163, 'g': 2}, {'p': 167, 'g': 5}, {'p': 173, 'g': 2},
         {'p': 179, 'g': 2}, {'p': 181, 'g': 2}, {'p': 191, 'g': 19}, {'p': 193, 'g': 5}, {'p': 197, 'g': 2},
         {'p': 199, 'g': 3}, {'p': 211, 'g': 2}, {'p': 223, 'g': 3}, {'p': 227, 'g': 2}, {'p': 229, 'g': 6},
         {'p': 233, 'g': 3}, {'p': 239, 'g': 7}, {'p': 241, 'g': 7}, {'p': 251, 'g': 6}]
```

In 9

```python
import numpy as np
import pandas as pd
import random
data = np.zeros((1,6))  # 放个1*6的全为0的ndarray方便后面拼接
# 将结果转为DataFrame形式并存入csv文件
for i in p_g_l:
    # 随机生成双方私密整数
    A = random.randint(1, 100)
    B = random.randint(1, 100)
    temp = np.array([[i['p'], i['g'], A, B, D_H(i['p'], i['g'], A, B)[0], D_H(i['p'], i['g'], A, B)[1]]])
    # 拼接
    data = np.vstack((data, temp))
# 去掉全为0的第一行
data = data[1:, :]
# 转为DataFrame
df = pd.DataFrame(data, columns=['p', 'g', 'A', 'B', 'Ks1', 'Ks2'])
df
```

Out 9

1-10 | 29行 × 6列

	p	g	A	B	Ks1	Ks2
0	101.0	2.0	95.0	61.0	60.0	60.0
1	103.0	5.0	12.0	27.0	79.0	79.0
2	107.0	2.0	80.0	53.0	1.0	1.0
3	109.0	6.0	18.0	2.0	63.0	63.0
4	113.0	3.0	33.0	58.0	63.0	63.0
5	127.0	3.0	50.0	5.0	113.0	113.0
6	131.0	2.0	66.0	70.0	99.0	99.0
7	137.0	3.0	65.0	26.0	68.0	68.0
8	139.0	2.0	47.0	61.0	17.0	17.0
9	149.0	2.0	62.0	37.0	148.0	148.0

```
In 10   1  # 转为csv文件
        2  df.to_csv('result.csv', index=False)
```

	A	B	C	D	E	F	G
1		p	g	A	B	Ks1	Ks2
2	0	101	2	95	61	60	60
3	1	103	5	12	27	79	79
4	2	107	2	80	53	1	1
5	3	109	6	18	2	63	63
6	4	113	3	33	58	63	63
7	5	127	3	50	5	113	113
8	6	131	2	66	70	99	99
9	7	137	3	65	26	68	68
10	8	139	2	47	61	17	17
11	9	149	2	62	37	148	148
12	10	151	6	6	7	78	78
13	11	157	5	19	86	105	105
14	12	163	2	76	64	16	16
15	13	167	5	64	51	98	98
16	14	173	2	59	48	100	100
17	15	179	2	86	51	13	13
18	16	181	2	43	31	84	84
19	17	191	19	47	17	168	168
20	18	193	5	95	34	97	97
21	19	197	2	7	9	129	129
22	20	199	3	54	13	18	18
23	21	211	2	40	4	161	161
24	22	223	3	41	35	102	102
25	23	227	2	74	37	173	173
26	24	229	6	61	18	172	172
27	25	233	3	91	59	193	193
28	26	239	7	94	51	24	24
29	27	241	7	40	54	1	1
30	28	251	6	64	39	49	49

可以看到，双方算出的会话秘钥 Ks1=Ks2