$P_6 \square P_n$

$\chi_\rho(P_6 \square P_6)=8$

1	2	1	3	1	2
3	1	4	1	5	1
1	6	1	2	1	3
2	1	3	1	7	1
1	5	1	8	1	2
3	1	2	1	3	1

$\chi_\rho(P_6 \square P_n)=9$, n=7,8,...,11

1	2	1	3	1	2	1	3	1	2	1
3	1	6	1	4	1	5	1	7	1	3
1	5	1	2	1	3	1	2	1	4	1
2	1	3	1	8	1	9	1	3	1	2
1	4	1	7	1	2	1	6	1	5	1
3	1	2	1	3	1	4	1	2	1	3

$\chi_\rho(P_6 \square C_{14})=10$. It follows that $\chi_\rho(P_6 \square P_n)=10$, n>=12

1	2	1	3	1	2	1	3	1	2	1	3	1	10
3	1	4	1	8	1	5	1	9	1	4	1	2	1
1	6	1	2	1	3	1	2	1	3	1	7	1	5
2	1	3	1	7	1	4	1	6	1	2	1	3	1
1	9	1	5	1	2	1	3	1	5	1	8	1	4
3	1	2	1	3	1	10	1	2	1	3	1	2	1

$P_7 \square P_n$

$\chi_\rho(P_7 \square P_n)=9$, n=7,8

1	2	1	3	1	2	1	3
3	1	4	1	5	1	6	1
1	7	1	2	1	3	1	2
2	1	3	1	8	1	4	1
1	5	1	9	1	2	1	3
3	1	2	1	3	1	5	1
1	4	1	6	1	7	1	2

$\chi_\rho(P_7 \square P_n)=10$, n=9,10,11,12,13,14

1	2	1	3	1	2	1	3	1	2	1	3	1	4
3	1	6	1	4	1	7	1	5	1	6	1	2	1
1	8	1	2	1	3	1	2	1	3	1	9	1	3
2	1	3	1	5	1	10	1	4	1	2	1	5	1
1	4	1	9	1	2	1	3	1	8	1	3	1	2
3	1	2	1	3	1	6	1	2	1	7	1	4	1
1	5	1	7	1	4	1	5	1	3	1	2	1	3

$\chi_\rho(P_7 \square C_{16})=11$. It follows that $\chi_\rho(P_7 \square P_n)<=11$, $n>=15$

1	2	1	3	1	2	1	3	1	2	1	3	1	4	1	5
3	1	6	1	4	1	7	1	5	1	6	1	2	1	7	1
1	8	1	2	1	3	1	2	1	3	1	9	1	3	1	2
4	1	3	1	5	1	10	1	4	1	2	1	5	1	11	1
1	2	1	9	1	2	1	3	1	8	1	3	1	2	1	3
5	1	7	1	3	1	6	1	2	1	7	1	4	1	6	1
1	3	1	2	1	4	1	5	1	3	1	2	1	3	1	2

$P_8 \square P_n$

$\chi_\rho(P_8 \square P_8)=9$

1	2	1	3	1	2	1	3
3	1	4	1	5	1	6	1
1	7	1	2	1	3	1	2
2	1	3	1	8	1	4	1
1	5	1	9	1	2	1	3
3	1	2	1	3	1	5	1
1	4	1	6	1	7	1	2
2	1	3	1	2	1	3	1

$\chi_\rho(P_8 \square P_n)=10$, $n=9,10,11$

1	2	1	3	1	2	1	3	1	4	1
6	1	8	1	4	1	5	1	2	1	3
1	3	1	2	1	3	1	6	1	9	1
2	1	5	1	7	1	2	1	3	1	2
1	4	1	3	1	10	1	4	1	5	1
3	1	9	1	2	1	3	1	2	1	3
1	2	1	6	1	5	1	8	1	7	1
5	1	3	1	4	1	2	1	3	1	2

$\chi_\rho(P_n \square P_8)<=11$, $n=12,13,14,15,16,17,18,\ldots,27$

1	2	1	3	1	6	1	2
7	1	10	1	2	1	3	1
1	3	1	4	1	5	1	8
5	1	2	1	3	1	2	1
1	6	1	11	1	7	1	3
2	1	3	1	2	1	4	1
1	4	1	5	1	9	1	2
3	1	2	1	3	1	6	1
1	7	1	8	1	2	1	3
2	1	3	1	4	1	5	1
1	5	1	2	1	3	1	2
3	1	6	1	10	1	7	1
1	2	1	3	1	2	1	3
4	1	9	1	5	1	4	1
1	3	1	2	1	3	1	2
2	1	7	1	11	1	6	1
1	5	1	3	1	2	1	3
3	1	2	1	4	1	5	1
1	6	1	8	1	3	1	2
2	1	3	1	2	1	7	1

```
1  4  1  5  1  9  1  3
3  1  2  1  3  1  2  1
1  7  1 10  1  6  1  4
5  1  3  1  2  1  3  1
1  2  1  4  1  5  1  2
3  1 11  1  3  1  8  1
1  6  1  2  1  7  1  3
```

$\chi_\rho(P_8 \square C_{14}) <= 12$. It follows that $\chi_\rho(P_8 \square P_n) = 12$, $n >= 28$

```
1  2  1  3  1  2  1  3  1  2  1  3  1  4
3  1  5  1  4  1 10  1 11  1  5  1  2  1
1  8  1  2  1  3  1  2  1  3  1  6  1  9
2  1  3  1  6  1  5  1  4  1  7  1  3  1
1  4  1  7  1  2  1  3  1  2  1 12  1  5
3  1  2  1  3  1  9  1  8  1  3  1  2  1
1 11  1  5  1  4  1  2  1  5  1  4  1 10
2  1  3  1  2  1  3  1  6  1  2  1  3  1
```

$P_9 \square P_n$

$\chi_\rho(P_9 \square P_9) = 10$

```
1  2  1  3  1  2  1  3  1
3  1  4  1  5  1  8  1  6
1  6  1  2  1  3  1  2  1
2  1  3  1  7  1  4  1  3
1  5  1  9  1  2  1  5  1
3  1  2  1  3  1 10  1  7
1  8  1  4  1  6  1  3  1
2  1  3  1  5  1  2  1  7
1  7  1  2  1  3  1  4  1
```

$\chi_\rho(P_9 \square P_n) <= 11$, $n=10,11,12,13,14$

```
1  2  1  3  1  2  1  3  1  2  1  3  1  2
3  1  4  1  6  1  7  1  5  1  4  1 10  1
1  8  1  2  1  3  1  2  1  3  1  2  1  3
2  1  5  1 11  1  4  1  9  1  6  1  5  1
1  7  1  3  1  2  1  3  1  2  1  3  1  2
6  1  2  1 10  1  5  1  8  1  7  1  4  1
1  3  1  4  1  3  1  2  1  3  1  2  1  3
2  1  9  1  2  1  6  1  4  1  5  1 11  1
1  5  1  3  1  7  1  3  1  2  1  3  1  2
```

$\chi_\rho(P_n \square P_9) <= 12$, $n=15,16,17,18,19,20,\ldots,41$

```
1  2  1  3  1  2  1  3  1
3  1  4  1  5  1 10  1  4
1  8  1  9  1  3  1  2  1
2  1  3  1  2  1 12  1  3
1  5  1  6  1  4  1  5  1
3  1  2  1  3  1  7  1  2
1  4  1 11  1  2  1  3  1
2  1  3  1  5  1  8  1  4
1  7  1  2  1  3  1  2  1
3  1 10  1  4  1  6  1  3
```

1 2 1 3 1 2 1 5 1
8 1 5 1 9 1 3 1 2
1 3 1 2 1 7 1 4 1
4 1 6 1 3 1 2 1 3
1 2 1 12 1 5 1 11 1
5 1 3 1 2 1 3 1 2
1 7 1 4 1 8 1 6 1
3 1 2 1 3 1 2 1 3
1 9 1 5 1 10 1 4 1
2 1 3 1 2 1 3 1 2
1 4 1 6 1 7 1 5 1
3 1 2 1 3 1 2 1 3
1 5 1 11 1 4 1 9 1
2 1 3 1 2 1 3 1 2
1 7 1 8 1 5 1 6 1
3 1 2 1 3 1 2 1 4
1 10 1 4 1 12 1 3 1
2 1 3 1 2 1 7 1 2
1 5 1 6 1 3 1 5 1
3 1 2 1 9 1 4 1 8
1 4 1 3 1 2 1 3 1
2 1 7 1 5 1 11 1 2
1 3 1 2 1 3 1 6 1
5 1 8 1 4 1 2 1 3
1 2 1 3 1 10 1 5 1
3 1 6 1 2 1 3 1 2
1 4 1 5 1 7 1 4 1
2 1 12 1 3 1 2 1 3
1 3 1 2 1 9 1 8 1
5 1 11 1 4 1 3 1 2
1 2 1 3 1 2 1 5 1

$\chi_\rho(P_9 \square C_{20}) <= 13$. It follows that $\chi_\rho(P_9 \square P_n) <= 13$, $n>41$

 1 2 1 3 1 2 1 3 1 2 1 3 1 2 1 3 1 2 1 3
 4 1 5 1 6 1 4 1 5 1 7 1 4 1 5 1 6 1 7 1
 1 3 1 2 1 3 1 2 1 3 1 2 1 3 1 2 1 3 1 2
12 1 8 1 7 1 10 1 11 1 6 1 9 1 13 1 4 1 5 1
 1 2 1 3 1 2 1 3 1 2 1 3 1 2 1 3 1 2 1 3
 6 1 4 1 9 1 5 1 4 1 8 1 5 1 7 1 10 1 11 1
 1 3 1 2 1 3 1 2 1 3 1 2 1 3 1 2 1 3 1 2
 7 1 5 1 13 1 6 1 7 1 12 1 4 1 6 1 5 1 4 1
 1 2 1 3 1 2 1 3 1 2 1 3 1 2 1 3 1 2 1 3

$P_{10} \square P_n$

$\chi_\rho(P_{10} \square P_n) <= 11$, $n=10,11,12$

1 2 1 3 1 2 1 3 1 2 1 3
4 1 8 1 5 1 6 1 7 1 4 1
1 3 1 2 1 3 1 2 1 3 1 2
2 1 9 1 4 1 10 1 11 1 5 1
1 5 1 3 1 2 1 3 1 2 1 3
3 1 2 1 7 1 5 1 4 1 6 1
1 4 1 6 1 3 1 2 1 3 1 2
2 1 3 1 2 1 8 1 9 1 7 1
1 11 1 5 1 4 1 3 1 2 1 3

3 1 2 1 3 1 2 1 5 1 4 1

$\chi_\rho(P_n \square P_{10}) <= 12$, n=13,14,...,24

```
 1  2  1  3  1  2  1  3  1  2
 4  1  5  1  6  1  7  1  8  1
 1  3  1  2  1  3  1  5  1  3
12  1 10  1  4  1 11  1  2  1
 1  2  1  3  1  2  1  3  1  4
 3  1  7  1  5  1  9  1  6  1
 1  4  1  2  1  3  1  2  1  3
 2  1  3  1  8  1  4  1  5  1
 1  5  1  6  1  2  1  3  1  2
 3  1  2  1  3  1  7  1 10  1
 1  9  1  4  1  5  1  2  1  3
 2  1  3  1  2  1  3  1  4  1
 1  7  1 11  1 12  1  6  1  8
 3  1  2  1  3  1  2  1  5  1
 1  8  1  5  1  4  1  3  1  2
 2  1  3  1  2  1  9  1  7  1
 1  4  1  6  1  3  1  2  1  3
 3  1  2  1 10  1  5  1  4  1
 1  5  1  3  1  2  1  3  1  2
 2  1  7  1  4  1  8  1  6  1
 1  3  1  2  1  3  1  2  1  5
 4  1  9  1  5  1 11  1  3  1
 1  2  1  3  1  2  1  4  1  2
 3  1 12  1  6  1  3  1  7  1
```

$\chi_\rho(P_{10} \square C_{16}) <= 14$. It follows that $\chi_\rho(P_{10} \square P_n) <= 14$, n>24

```
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
 4  1  5  1  8  1  4  1  6  1  7  1  5  1 12  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
 7  1  9  1 13  1  5  1 10  1 11  1  4  1  6  1
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
 5  1  4  1  6  1  7  1  4  1  5  1  8  1 14  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
10  1 11  1  5  1 12  1  9  1  6  1  7  1  4  1
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
 6  1  7  1  4  1  8  1  5  1  4  1 13  1  5  1
```

$P_{11} \square P_n$

$\chi_\rho(P_{11} \square C_{16}) <= 14$. It follows that $\chi_\rho(P_{11} \square P_n) <= 14$

```
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
 4  1  5  1  8  1  4  1  6  1  7  1  5  1 12  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
 7  1  9  1 13  1  5  1 10  1 11  1  4  1  6  1
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
 5  1  4  1  6  1  7  1  4  1  5  1  8  1 14  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
10  1 11  1  5  1 12  1  9  1  6  1  7  1  4  1
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
```

```
 6  1  7  1  4  1  8  1  5  1  4  1 13  1  5  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
```

$P_{12}\square P_n$

$\chi_\rho(P_{12}\square C_{16})<=15$. It follows that $\chi_\rho(P_{12}\square P_n)<=15$

```
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
 4  1  5  1  8  1 14  1  9  1  6  1  7  1 12  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
 6  1  7  1  4  1 15  1  5  1  4  1 10  1  5  1
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
11  1  9  1  5  1  6  1  7  1  8  1 13  1  4  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
 5  1  4  1 10  1 12  1  4  1  5  1  6  1  7  1
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
 8  1  6  1  7  1  5  1 11  1  9  1  4  1 14  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
 4  1  5  1 13  1  4  1  6  1  7  1  5  1 15  1
```

$P_{13}\square P_n$

$\chi_\rho(P_{13}\square C_{16})<=15$. It follows that $\chi_\rho(P_{13}\square P_n)<=15$

```
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
 4  1  5  1  8  1 14  1  9  1  6  1  7  1 12  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
 6  1  7  1  4  1 15  1  5  1  4  1 10  1  5  1
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
11  1  9  1  5  1  6  1  7  1  8  1 13  1  4  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
 5  1  4  1 10  1 12  1  4  1  5  1  6  1  7  1
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
 8  1  6  1  7  1  5  1 11  1  9  1  4  1 14  1
 1  3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
 4  1  5  1 13  1  4  1  6  1  7  1  5  1 15  1
 1  2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
```

$C_4\square P_n$

$\chi_\rho(C_4\square P_n)=5$, n=2,3

```
1  4  1
2  1  3
1  5  1
3  1  2
```

$\chi_\rho(C_4\square P_n)=7$, n=4,5,6,7

```
1  4  1  6  1  5  1
2  1  3  1  2  1  3
1  5  1  7  1  4  1
```

3 1 2 1 3 1 2

$\chi_\rho(C_4 \square P_n)=8$, n=8,9

1 4 1 5 1 8 1 6 1
2 1 3 1 2 1 3 1 2
1 6 1 7 1 4 1 5 1
3 1 2 1 3 1 2 1 3

$\chi_\rho(C_4 \square C_{16})=9$. It follows that $\chi_\rho(C_4 \square P_n)=9$, n>9

1 4 1 6 1 5 1 8 1 4 1 6 1 5 1 9
2 1 3 1 2 1 3 1 2 1 3 1 2 1 3 1
1 5 1 7 1 4 1 9 1 5 1 7 1 4 1 8
3 1 2 1 3 1 2 1 3 1 2 1 3 1 2 1

C6□Pn

$\chi_\rho(C_6 \square P_2)=5$

1 2
3 1
1 4
2 1
1 3
5 1

$\chi_\rho(C_6 \square P_n)=8$, n=3,4,5

1 3 1 2 1
2 1 6 1 3
1 5 1 4 1
3 1 8 1 2
1 2 1 3 1
4 1 7 1 5

$\chi_\rho(C_6 \square P_n)=10$, n=6,7

1 3 1 9 1 2 1
2 1 5 1 3 1 7
1 4 1 2 1 6 1
3 1 8 1 10 1 2
1 7 1 3 1 5 1
6 1 2 1 4 1 3

$\chi_\rho(C_6 \square P_n)=11$, n=8,9,10

1 3 1 2 1 5 1 3 1 2
2 1 4 1 3 1 2 1 4 1
1 6 1 7 1 10 1 8 1 9
3 1 5 1 2 1 3 1 5 1
1 2 1 3 1 4 1 2 1 3
8 1 9 1 11 1 6 1 7 1

$\chi_\rho(C_6 \square P_n)=12$, za $n=11,\ldots,18$

```
1  4  1  2  1  3  1  4  1  2  1  3  1  4  1  2  1  3
2  1  7  1 10  1  6  1  8  1  9  1  7  1 11  1  6  1
1  5  1  3  1  2  1  5  1  3  1  2  1  5  1  3  1  2
3  1  2  1  4  1  3  1  2  1  4  1  3  1  2  1  4  1
1  8  1  9  1 11  1  7  1 12  1  6  1 10  1  8  1  7
6  1  3  1  5  1  2  1  3  1  5  1  2  1  3  1  5  1
```

$\chi_\rho(C_{48} \square C_6)=13$. It follows that $\chi_\rho(C_6 \square P_n)=13$, $n>18$

```
 1  2  1  3  1  7
 3  1  8  1  2  1
 1  5  1 10  1  4
 6  1  2  1  3  1
 1  3  1  9  1  2
11  1  4  1  5  1
 1  2  1 12  1  3
 7  1  3  1  2  1
 1  5  1  6  1  4
 8  1  2  1  3  1
 1  3  1 13  1  2
10  1  4  1  5  1
 1  2  1  7  1  3
 6  1  3  1  2  1
 1  5  1 11  1  4
 9  1  2  1  3  1
 1  3  1  8  1  2
 7  1  4  1  5  1
 1  2  1  6  1  3
12  1  3  1  2  1
 1  5  1 10  1  4
13  1  2  1  3  1
 1  3  1  7  1  2
 6  1  4  1  5  1
 1  2  1  9  1  3
 8  1  3  1  2  1
 1  5  1 11  1  4
 7  1  2  1  3  1
 1  3  1  6  1  2
10  1  4  1  5  1
 1  2  1 12  1  3
 9  1  3  1  2  1
 1  5  1  7  1  4
 2  1  8  1  3  1
 1  3  1  2  1  6
11  1  4  1  5  1
 1  2  1 13  1  3
 7  1  3  1  2  1
 1  5  1  9  1  4
 2  1  6  1  3  1
 1  3  1  2  1  8
10  1  4  1  5  1
 1  2  1  3  1 12
 3  1  7  1  2  1
 1  5  1 11  1  4
 9  1  2  1  3  1
 1  3  1  6  1  2
13  1  4  1  5  1
```

$C_8 \square P_n$

$\chi_\rho(C_8 \square P_n)=7$, n=2,3

```
1  4  1
2  1  3
1  5  1
3  1  2
1  6  1
2  1  3
1  7  1
3  1  2
```

$\chi_\rho(C_8 \square P_n)=9$, n=4,5

```
1  4  1  9  1
2  1  3  1  2
1  5  1  8  1
3  1  2  1  3
1  6  1  4  1
2  1  3  1  2
1  7  1  5  1
3  1  2  1  3
```

$\chi_\rho(C_8 \square P_n)=10$, n=6,7

```
1  3  1  5  1  4  1
2  1  8  1  2  1  3
1  6  1  3  1  7  1
3  1  2  1 10  1  2
1  5  1  4  1  3  1
2  1  3  1  2  1  5
1  7  1  9  1  6  1
4  1  2  1  3  1  2
```

$\chi_\rho(C_8 \square P_n)=11$, n=8

```
1  3  1  2  1  5  1  8
2  1  4  1 10  1  3  1
1  6  1  3  1  2  1  4
3  1  2  1 11  1  7  1
1  8  1  5  1  3  1  2
4  1  3  1  2  1  6  1
1  2  1  9  1  4  1  3
5  1  7  1  3  1  2  1
```

$\chi_\rho(C_8 \square P_n)<=12$, n=9,10

```
1  3  1 10  1  6  1  7  1  3
2  1  9  1  4  1  3  1  2  1
1  5  1  3  1  2  1  8  1  4
3  1  2  1 11  1  5  1  3  1
1  6  1  7  1  3  1  2  1  6
2  1  3  1  2  1  4  1  9  1
1  8  1  5  1 12  1  3  1  2
4  1  2  1  3  1  2  1  5  1
```

$\chi_\rho(C_8 \square P_n) <= 13$, n=11,12,...,15

```
1  4  1 10  1  6  1 12  1  5  1  8  1  6  1
2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
1  5  1 11  1  7  1 13  1  4  1  9  1  7  1
3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
1  6  1  4  1  8  1  5  1  6  1 10  1  4  1
2  1  3  1  2  1  3  1  2  1  3  1  2  1  3
1  7  1  5  1  9  1  4  1  7  1 11  1  5  1
3  1  2  1  3  1  2  1  3  1  2  1  3  1  2
```

$\chi_\rho(P_{34} \square C_8) <= 14$. It follows that $\chi_\rho(C_8 \square P_n) <= 14$, n=16,...,34

```
  1  2  1  3  1  2  1  3
  4  1  5  1  6  1  7  1
  1  3  1  2  1  3  1  2
  8  1 10  1  4  1  5  1
  1  2  1  3  1  9  1  3
 12  1  7  1 11  1  2  1
  1  3  1  2  1  3  1  4
  2  1  6  1  5  1 13  1
  1 14  1  3  1  2  1  3
  5  1  2  1  4  1  7  1
  1  9  1  8  1  3  1  2
  4  1  3  1  2  1  6  1
  1  2  1  5  1 10  1  3
 11  1  7  1  3  1  2  1
  1  3  1  2  1  4  1  5
  2  1  6  1 12  1  3  1
  1  4  1  3  1  2  1  8
  3  1  2  1  5  1  7  1
  1 13  1  9  1  3  1  2
  5  1  3  1  2  1  6  1
  1  2  1  4  1 14  1  3
 10  1  7  1  3  1  2  1
  1  3  1  2  1  5  1  4
  2  1  6  1  8  1  3  1
  1  5  1  3  1  2  1  9
  3  1  2  1  4  1  7  1
  1 12  1 11  1  3  1  2
  4  1  3  1  2  1  6  1
  1  2  1  5  1 13  1  3
  8  1  7  1  3  1  2  1
  1  3  1  2  1  4  1  5
  2  1  6  1  9  1  3  1
  1  4  1  3  1  2  1 10
  3  1  2  1  5  1  7  1
```

$\chi_\rho(C_{24} \square C_8) <= 15$. It follows that $\chi_\rho(C_8 \square P_n) <= 15$, n>34

```
  1  3  1  2  1  3  1  2
 13  1  6  1  4  1  5  1
  1  2  1  3  1  2  1  3
  8  1  7  1  9  1 15  1
  1  3  1  2  1  3  1  2
  4  1 12  1  5  1  6  1
  1  2  1  3  1  2  1  3
  5  1 14  1  4  1  7  1
```

```
 1  3  1  2  1  3  1  2
 9  1  6  1  8  1 10  1
 1  2  1  3  1  2  1  3
 4  1  7  1  5  1 11  1
 1  3  1  2  1  3  1  2
 5  1 13  1  4  1  6  1
 1  2  1  3  1  2  1  3
 8  1 15  1  9  1  7  1
 1  3  1  2  1  3  1  2
 4  1  6  1  5  1 12  1
 1  2  1  3  1  2  1  3
 5  1  7  1  4  1 14  1
 1  3  1  2  1  3  1  2
 9  1 10  1  8  1  6  1
 1  2  1  3  1  2  1  3
 4  1  5  1 11  1  7  1
```

$C_{10}\square P_n$

$\chi_\rho(C_{10}\square C_{48})<=22$. It follows that $\chi_\rho(C_{10}\square P_n)<=22$ for arbitrary big n

```
 1  2  1  6  1  3  1  2  1  3  1  2  1 19  1  3  1  2  1  6  1  4  1 13  1 11  1  3  1  2  1 18  1  4  1  2  1  3  1  2  1 16  1  3  1  2  1  3
 4  1  3  1  5  1 18  1  4  1  9  1  3  1  2  1  7  1  3  1  2  1  3  1  2  1 14  1  4  1  8  1  3  1 17  1  5  1  4  1 11  1  8  1  5  1  7  1
 1 10  1 14  1  2  1  3  1  2  1 16  1 12  1 10  1  4  1  5  1 20  1  7  1  3  1  2  1  3  1  2  1 10  1  3  1  2  1  3  1  2  1  6  1  3  1  2
 3  1  2  1  4  1  7  1 11  1  3  1  2  1  3  1  2  1  9  1  3  1  2  1  4  1  5  1  6  1  9  1  5  1  2  1  6  1  7  1  5  1  3  1  2  1 13  1
 1  5  1  9  1  3  1  2  1  5  1  8  1  4  1  5  1  3  1  2  1  8  1  3  1  2  1  3  1  2  1  7  1  3  1  4  1  3  1  2  1  9  1 19  1  4  1 12
 8  1  3  1  2  1  6  1  3  1  2  1  3  1  2  1  6  1 11  1  4  1  5  1 10  1 16  1 12  1  3  1  2  1 13  1  2  1 14  1  3  1  2  1  3  1  2  1
 1  4  1 17  1  5  1 21  1  4  1  7  1 15  1  3  1  2  1  3  1  2  1  6  1  3  1  2  1  5  1  4  1 11  1  3  1  5  1  4  1 10  1  7  1  5  1  3
11  1  2  1  3  1  2  1 10  1  3  1  2  1 14  1  4  1  5  1  7  1  3  1  2  1  4  1  3  1  2  1  3  1  2  1  8  1  3  1  2  1  3  1  2  1  6  1
 1  3  1  7  1  4  1  3  1  2  1 13  1  3  1  2  1  3  1  2  1 22  1  9  1  5  1  7  1 15  1  6  1  5  1  7  1  2  1  6  1  5  1  4  1  3  1  2
 5  1 20  1  2  1  8  1  5  1  6  1  4  1  5  1  8  1 17  1  3  1  2  1  3  1  2  1 21  1  3  1  2  1  3  1  9  1 12  1  3  1  2  1 15  1  9  1
```

$C_{12}\square P_n$

$\chi_\rho(C_{12}\square C_{48})<=17$. It follows that $\chi_\rho(C_{12}\square P_n)<=17$ for arbitrary big n

```
 1  2  1  3  1  2  1  7  1  9  1 12  1  2  1  3  1  2  1  6  1  9  1  7  1  2  1  3  1  2  1  7  1  8  1 12  1  2  1  3  1  2  1  6  1  8  1  7
 3  1 15  1  4  1  5  1  3  1  2  1  3  1 11  1  4  1  5  1  3  1  2  1  3  1 15  1  4  1  5  1  3  1  2  1  3  1 10  1  4  1  5  1  3  1  2  1
 1 11  1  2  1  3  1  2  1  4  1  5  1  6  1  2  1  3  1  2  1  4  1  5  1 10  1  2  1  3  1  2  1  4  1  5  1  6  1  2  1  3  1  2  1  4  1  5
 2  1  3  1 14  1  6  1  8  1  3  1  2  1  3  1  7  1  8  1 16  1  3  1  2  1  3  1 14  1  6  1  9  1  3  1  2  1  3  1  7  1  9  1 13  1  3  1
 1  4  1  5  1  2  1  3  1  2  1 10  1  4  1  5  1  2  1  3  1  2  1  6  1  4  1  5  1  2  1  3  1  2  1 11  1  4  1  5  1  2  1  3  1  2  1  6
 3  1  2  1  3  1  4  1  5  1  7  1  3  1  2  1  3  1  4  1  5  1 11  1  3  1  2  1  3  1  4  1  5  1  7  1  3  1  2  1  3  1  4  1  5  1 10  1
 1  8  1  7  1  9  1  2  1  3  1  2  1 15  1  9  1  6  1  2  1  3  1  2  1  9  1  7  1  8  1  2  1  3  1  2  1 15  1  8  1  6  1  2  1  3  1  2
 5  1  3  1  2  1  3  1 11  1  4  1  5  1  3  1  2  1  3  1  7  1  4  1  5  1  3  1  2  1  3  1 13  1  4  1  5  1  3  1  2  1  3  1  7  1  4  1
 1  2  1  4  1  5  1 16  1  2  1  3  1  2  1  4  1  5  1 13  1  2  1  3  1  2  1  4  1  5  1 10  1  2  1  3  1  2  1  4  1  5  1 11  1  2  1  3
12  1  6  1  3  1  2  1  3  1  6  1  8  1  7  1  3  1  2  1  3  1  8  1 12  1  6  1  3  1  2  1  3  1  6  1  9  1  7  1  3  1  2  1  3  1  9  1
 1  3  1  2  1 13  1  4  1  5  1  2  1  3  1  2  1 10  1  4  1  5  1  2  1  3  1  2  1 17  1  4  1  5  1  2  1  3  1  2  1 14  1  4  1  5  1  2
 4  1  5  1 10  1  3  1  2  1  3  1  4  1  5  1 14  1  3  1  2  1  3  1  4  1  5  1 11  1  3  1  2  1  3  1  4  1  5  1 16  1  3  1  2  1  3  1
```

$\chi_\rho(P_2\square P_3\square P_2)=5$

Colors of two $P_2\square P_3$ layers

```
1 5 1   2 1 3
3 1 2   1 4 1
```

$\chi_\rho(P_2\square P_3\square P_n)=8$, n=3,4

Colors of four $P_2\square P_3$ layers

```
1 3 1   2 1 6    1 4 1    3 1 5
5 1 2   1 7 1    8 1 3    1 2 1
```

$\chi_\rho(P_2\square P_3\square P_n)=10$, n=5,6

Colors of six $P_2\square P_3$ layers

```
1 2 1   4 1 5    1 6 1    2  1 3    1 8 1    3 1 7
7 1 3   1 9 1    3 1 2    1 10 1    5 1 4    1 2 1
```

$\chi_\rho(P_2\square P_3\square P_7)<=11$

Colors of seven $P_2\square P_3$ layers

```
1 3 1   2 1 6    1  5 1    3 1  2    1 8 1   4 1 7   1 2 1
7 1 2   1 4 1    11 1 3    1 10 1    2 1 9   1 3 1   6 1 5
```

$\chi_\rho(P_2\square P_3\square P_n)<=12$, n=8,9

Colors of nine $P_2\square P_3$ layers

```
1 3 1   2 1 6   1 8 1   3 1 4    1 9  1   2 1 5   1 10 1   3 1 7   1 2 1
4 1 2   1 5 1   7 1 3   1 2 1   12 1 11   1 3 1   6  1 2   1 4 1   3 1 5
```

$\chi_\rho(P_2\square P_3\square P_n)<=14$, n=10,11,12,13

Colors of 13 $P_2\square P_3$ layers

```
1 3 1   2 1 7   1 4 1   3  1 8    1 5 1   2 1 3   1 6  1   3 1 2    1 4 1   2  1 9   1 5 1   3 1 7   1 2 1
6 1 2   1 5 1   9 1 3   1 11 1   13 1 2   1 4 1   7 1 10   1 5 1   14 1 3   1 12 1   8 1 2   1 4 1   6 1 3
```

$\chi_\rho(P_2\square P_3\square P_{14})<=15$

Colors of 14 $P_2\square P_3$ layers

```
1 3 1   2 1 7   1 4 1   3 1 2    1 5  1   2 1 3   1 6  1   3 1 2    1 4 1   2  1 8    1 5 1   3 1 9   1 7 1   2 1 10
6 1 2   1 5 1   8 1 3   1 9 1   10 1 11   1 4 1   7 1 12   1 5 1   14 1 3   1 13 1   15 1 2   1 4 1   6 1 3   1 5  1
```

$\chi_\rho(P_2\square P_3\square C_{48})<=18$. It follows that $\chi_\rho(P_2\square P_3\square P_n)<=18$ for arbitrary big n

Colors of 48 $P_2\square P_3$ layers

```
1 13 1   2  1 3   1 15 1   4 1 5    1 6 1    3  1 2   1 17 1   2 1 3   1 14 1   4 1 5    1 12 1   3 1 2
5  1 4   1 16 1   3  1 2   1 8 1    2 1 3    1 11 1   5  1 4   1 7 1   3  1 2   1 9 1    2  1 3   1 6 1

1 10 1   2 1 3    1 7 1    4  1 5   1 13 1   3  1 2   1 9 1    2 1 3   1 15 1   4 1 5    1 8 1    3  1 2
5  1 4   1 8 1    3 1 2    1 18 1   2  1 3   1 11 1   5 1 4    1 6 1   3  1 2   1 7 1    2 1 3    1 10 1

1 14 1   2  1 3   1 16 1   4 1 5    1 7 1    3 1 2    1 11 1   2 1 3   1 13 1   4  1 5   1 10 1   3  1 2
5  1 4   1 12 1   3  1 2   1 9 1    2 1 3    1 6 1    5  1 4   1 8 1   3  1 2   1 17 1   2  1 3   1 15 1

1 7 1    2 1 3    1 6 1    4  1 5   1 14 1   3 1 2    1 11 1   2 1 3   1 18 1   4 1 5    1 10 1   3 1 2
5 1 4    1 9 1    3 1 2    1 12 1   2  1 3   1 8 1    5  1 4   1 7 1   3  1 2   1 6 1    2  1 3   1 9 1
```