

1. What are the chances that 2 numbers picked have no common factor > 1 ?



$$P(2 \text{ evens}) = \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4} = \frac{1}{2^2}$$

$$P(\sim 2 \text{ evens}) = 1 - \frac{1}{4} = \frac{3}{4}$$

$$P(\sim \text{mult of } 3) = 1 - \frac{1}{9} = \frac{8}{9}$$

$$P(2 \text{ mult of } 3) = \frac{1}{9}$$

2. How long is F_n ?

$$F_4 = \left\{ \frac{0}{1}, \frac{1}{4}, \frac{1}{3}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{1}{1} \right\}$$

ord	Farey
1	0
2	1/4
3	1/3
4	1/2
5	2/3
6	3/4
7	1

$$1 - \frac{1}{2^2}$$