

Flip 1000 coins

- Say we flip 1000 coins
- What is the probability of exactly 500 heads?
- Interestingly, while 500 is the most likely outcome, it has a probability of only about 2.5%....
- The exact formula is

$$\binom{1000}{500} 2^{-1000} = \frac{(1000)!}{(500)!(500)!2^{1000}}$$

- This is “big number / big number” — how big is it really?