Flip four coins.... again!

- Flip four coins, let X be the number of heads, let $Y = X^2$.
- We have:

k	$\mathbb{P}(X = k)$
0	1/16
1	1/4
2	3/8
3	1/4
4	1/16

- So we can compute:

$$\begin{aligned}\mathbb{E}[X] &= 16 \cdot \frac{1}{16} + 9 \cdot \frac{1}{4} + 4 \cdot \frac{3}{8} + 1 \cdot \frac{1}{4} \\ &= 1 + \frac{9}{4} + \frac{3}{2} + \frac{1}{4} = \frac{20}{4} = 5.\end{aligned}$$

Note for posterity...

- $\mathbb{E}[X^2] = 5$
- $(\mathbb{E}[X])^2 = 4$