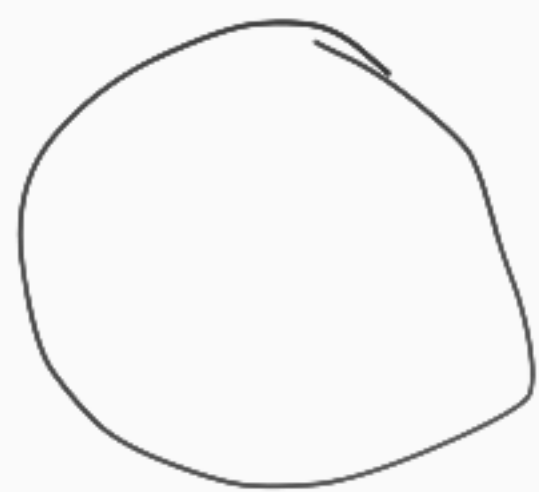




$$E \left[ \sum_{i=1}^n X_i \right]$$

linearity  
of  
exp.



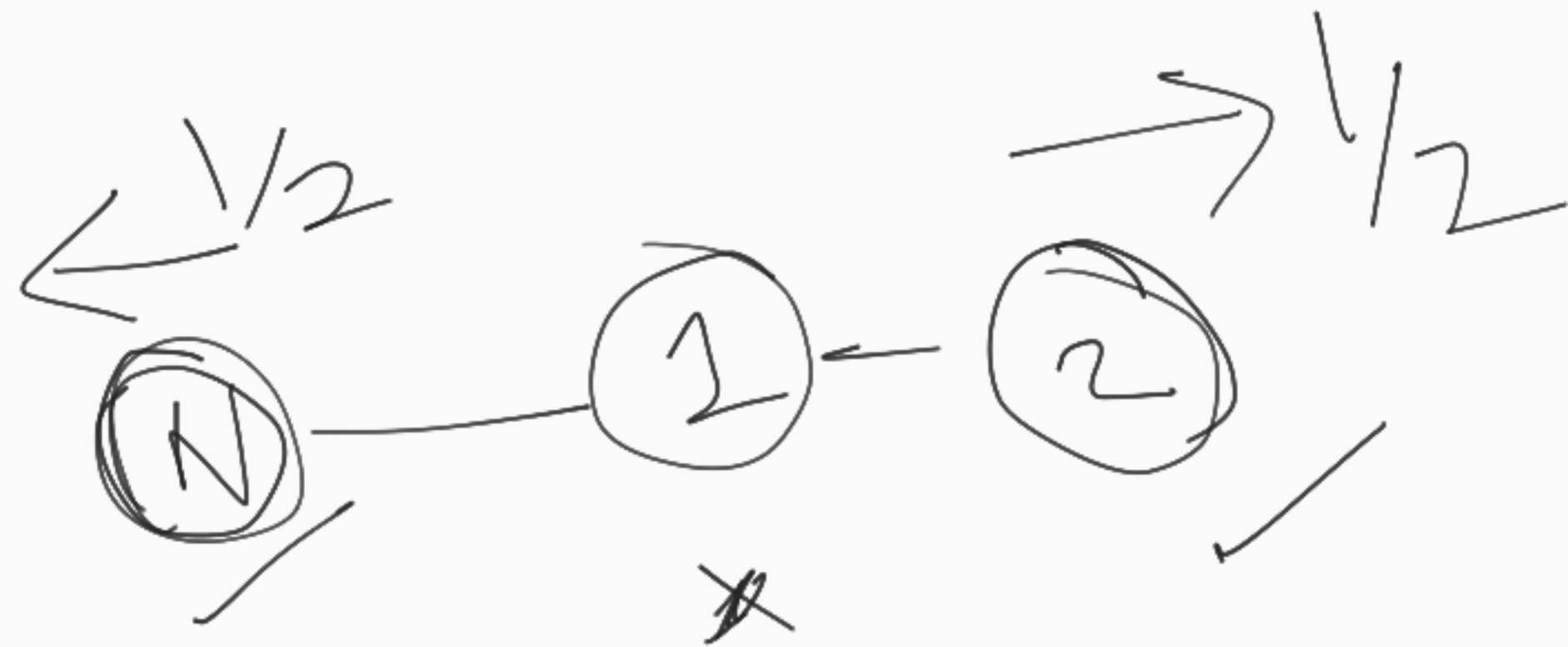
||

$$\sum_{i=1}^n E[X_i]$$

$$E[X_1] = E[X_2] = \dots = E[X_n]$$

$$E[X_1] = p(X_1 = 1) \times 1 + \underline{p(X_1 = 0) \times 0}$$

$$= \left( \frac{1}{2} \times \frac{1}{2} \right) \times 1 + = 1/4$$



$$\text{Ans} = N \times E[X_1]$$

$$= N/4$$

~~RV~~ = no. of child w/o corns

—

—

$$\sum x_i$$

» Solution to problem in previous slide...part-2

$$p_n = p p_{n-1} + p(1-p) p_{n-2},$$

with

$$p_1 = 0$$
$$p_2 = (1-p)^2$$

Solution for  
recurrence  
from class

A coin is tossed until two  
successive tails are obtained.  
 $P(\text{heads}) = p$ . Find the probability  
that experiment is completed on  $n$ -  
th toss.

$$p_n \rightarrow t^n$$

$$\Rightarrow t^n = p t^{n-1} + p(1-p) t^{n-2}$$

$$1 > p > \sqrt{4p - 3p^2} > 0 \quad \times$$