

11 Sept 2019

random

random var. X

result of coin flip
 $H=1, T=0$

$\mathbb{P}(X=+)$

$H=1$
 $T=0$

$\mathbb{P}(X=+)$

$\mathbb{P}(X=H) = \frac{1}{2}$
of fair

random var. X
if $H=1$ and $T=0$
 $X=1$

$E(X) = \frac{1}{2} = \frac{1}{2}$

roll die

1 2 3
4 5 6

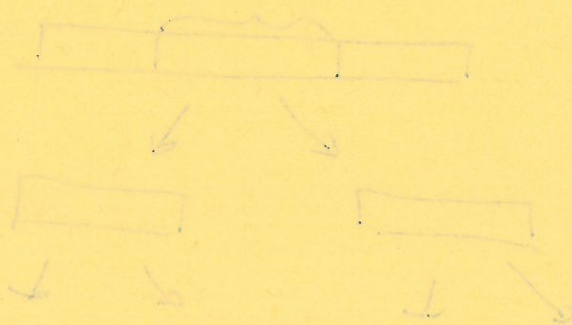
$\mathbb{P}(X=3) = \frac{1}{6}$
of fair

$E(X) = \frac{1}{6} = \frac{1}{6}$

disc n
su equal
in n

$\mathbb{P}(X = \frac{1}{n}) = \frac{1}{n}$
 $E(X) = \frac{1}{n}$

Analysis of Recursion I



expected # of levels = $\log_2 n$

each level

$n \geq 1$

entire in the group in tree

$$\Rightarrow T(n) = \Theta(n \log n)$$