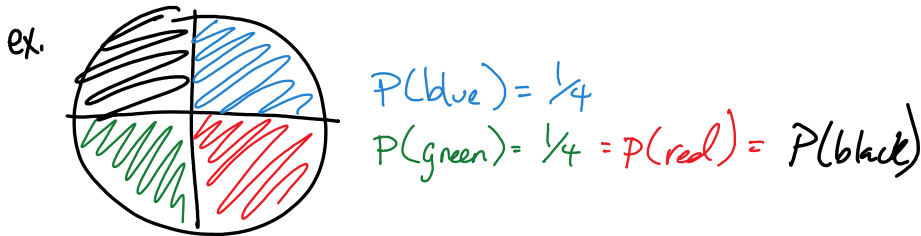


Expected Value

Thursday, November 29, 2018 12:47 PM

expected value: weighted average of how much you win or lose based on the probability of winning or losing



Game rules: Pay \$1 to play
 If the spinner lands on blue, win \$5
 Otherwise, win nothing.
 Should you play?

expected value: (Sum of amount you win) * (Probability you win)

$$E.V. = P(\text{blue}) \cdot 4 + P(\text{red}) \cdot (-1) + P(\text{black}) \cdot (-1) + P(\text{green}) \cdot (-1)$$

$\begin{matrix} & \uparrow & \\ 5 & - & 1 \\ \uparrow & & \downarrow \\ \text{won} & & \text{paid} \end{matrix}$

$\begin{matrix} & \uparrow & \\ & \text{paid } \$1 & \end{matrix}$

$$\begin{aligned}
 &= \frac{1}{4}(4) + 3 \left(\frac{1}{4} \cdot (-1) \right) \\
 &= 1 + \frac{-3}{4} \\
 &= \underline{4}
 \end{aligned}$$