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2022CS11113

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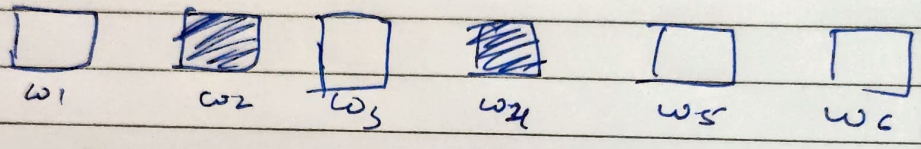
Grp L.

18.2

(a) Let E be an event that you get shot.

Let us consider the analogy.

chambers are buckets.



any 2 buckets are filled.

Let $S = \{w_1, w_2, w_3, w_4, w_5, w_6\}$
↓ sample space

Probablity of choosing a chamber $= \frac{1}{6}$ (equiprobable)

$P(E) =$ No. of filled chambers / Total no. of chambers (∵ choosing each chamber has equal probability)

$= \frac{2}{6} = \boxed{\frac{1}{3}}$

(b) Suppose one time trigger is pulled and you don't get shot.

Need sample space. $S = \{w_1, w_2, w_3, w_4, w_5\}$ where any 2 w_i, w_j $(i \neq j)$ are filled with bullets.

$P(E) =$

probability of getting shot = No. of filled chambers / total no. of chambers.

$$= \frac{2}{5}$$

(c) Suppose 2 shells are next to each other

E = event of getting shot.

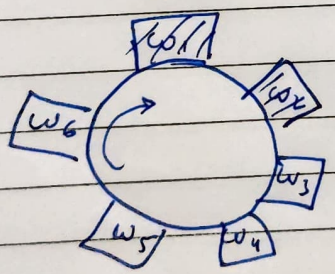
Choosing each shell is equiprobable.

∴ probability of choosing filled shell 1 = 1/6

" " " " " 2 = 1/6

Total probability of choosing a filled shell = 2/6 = 1/3

Now Suppose he pulled the trigger and you don't get shot.



if you didn't get shot means initially trigger was in w_3 or w_4 or w_5 or w_6.

$S = \{w_3, w_4, w_5, w_6\}$

Now in next trigger you get shot only if you are currently in w_6.

$$P(w_6) = \frac{1}{4}.$$