Discussion Section 1 | CamScanner (app for making PDF of your solutions)

"personal" (not to turn in) homework: DS hw answers to all odd-numbered problems in back

DS p. 15 #8

$S' = \{A, B, AB, O\}$ sample space

$A = \{A\}$ (not A) $= A^c$ "A complement"

T-F proposition $= \{B, AB, O\}$

change notation:

$A_* =$ (blood reacts with anti-A) $= \{A, AB\}$

$B_* =$ (blood reacts with anti-B $= \{B, AB\}$ = (B or AB)

= (A or AB)

A_*^c = (not A) = (blood does not react with anti-A)

$= \{B, O\}$

B_*^c = (not B) = (blood does not react with anti-B)

$= \{A, O\}$

A = (blood is of type A)

$(A_* \text{ and } B_*) = AB$

$(A_* \text{ and } B_*^c) = A$

$(A_*^c \text{ and } B_*) = B$

$(A_*^c \text{ and } B_*^c) = O$

P(blood reacts with anti-A)

$= P(A_*)$

$= P(A \text{ or } AB)$

$\overset{\text{no overlap}}{=} P(A) + P(AB)$

$P(A) = 0.34$

$P(B) = 0.12$

$P(O) = 0.5$

$P(AB) = 1 - P(A) - P(B) - P(O)$

$= 0.04$

So $P(A_*) = P(A) + P(AB)$

$= 0.34 + 0.04 = 0.38$

$P(B_*) = P(B \text{ or } AB) = P(B) + P(AB)$ (overlap)

$= 0.12 + 0.04 = 0.16$

$P(A_* \text{ and } B_*) = P(AB) = 0.04$

DS p. 25 #1

$P(\text{sum odd} \mid 2 \text{ fair dice}) = 0.5$ (intuition)

$S = \{1, \ldots, 6\}^2 = \{(1,1) \text{ or } \ldots (6,6)\}$ equal prob.

II

sum

die 1 \ die 2	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	8	8	9	10	11	12

ELM? yes

$P(\text{sum odd}) = \frac{2+4+6+4+2}{36} = \frac{18}{36} = \frac{1}{2}$

DS p. 25 #2

$p(\text{even}) = 1 - p(\text{odd})$

$= \frac{1}{2}$

#3 I_1 = # on die 1

I_2 = ——— 2

$p(|I_1 - I_2| < 3)$

I_2

I_1	1	2	3	4	5	6
1	0	1	2	3	4	5
2	1	0	1	2	3	4
3	2	1	0	1	2	3
4	3	2	1	0	1	2
5	4	3	2	1	0	1
6	5	4	3	2	1	0

← cross-tabulation of I_1 versus I_2

$= \frac{24}{36} = \frac{2}{3}$

#6 $S = \{HHH, HHT, \ldots, TTT\}$

# of elements in $S = 8$

3 fair coins tossed once each ↔ ELM

$p(\text{all faces same}) = \frac{2}{8}$

$= \frac{1}{4}$

wed OH 11.30am - 12.30pm

BE 119