

JUNE 2023				
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M	5	12	19	26
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May 2023

PROBABILITY

ASSIGNMENT

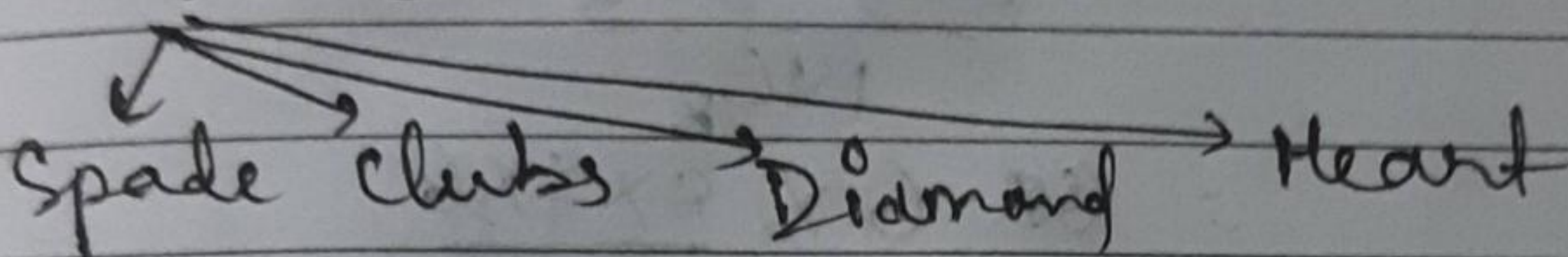
Tuesday

16

Day (136-229)

Q1.

52 cards



A
2
3
:
9
K
Q
J
13

$$P(\text{queen or diamond}) = \frac{13C_2 + 4C_2}{52C_2}$$

$$= \frac{13 \times 12}{2} + \frac{4 \times 3}{2}$$

$$= \frac{26 + 6}{52} = \frac{32}{52}$$

$$= \frac{78 + 6}{1326} = \frac{84}{1326}$$

$$= \frac{14}{221}$$

The bad news is time flies. The good news is you're the pilot. - Michael Althsuler

multiplex

May 2023



MAY 2023												
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17 Wednesday
Day (137-228)

Q2. 6P, 80
P(5 pink & rest orange) =

$$\frac{6C_5 \cdot 8C_3}{14C_8}$$

$$= \frac{6 \times 8 \times 7 \times 6}{3 \times 2}$$

$$\frac{7 \times 11 \times 13 \times 12 \times 10 \times 9 \times 8}{6 \times 5 \times 4 \times 3 \times 2}$$

$$= \frac{56 \times 8}{30 \times 8} \times \frac{7 \times 11 \times 13 \times 12 \times 10 \times 9 \times 8}{7 \times 11 \times 13 \times 12 \times 10 \times 9 \times 8}$$

$$= \frac{16}{143} \text{ (Ans)}$$

Q3. 12 bulbs $\begin{cases} 6 \text{ good} \\ 6 \text{ bad} \end{cases}$

$$P(\text{all bulbs light up}) = \frac{6C_4}{12C_4} = \frac{6C_4}{12C_4}$$

$$= 1 - P(\text{no light up})$$

$$= \frac{6 \times 5 \times 4}{4 \times 3 \times 2} \times \frac{12 \times 11 \times 10 \times 9}{12 \times 11 \times 10 \times 9}$$

May 2023



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
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18 Thursday
Day (138-227)

$$= 6 \times 5 \times 4$$

$$\frac{12 \times 11 \times 10 \times 9}{8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2}$$

$$= 1 - \frac{6 \times 5 \times 4 \times 3}{4 \times 3 \times 2} = 1 - \frac{1}{33}$$

$$= \frac{32}{33} \text{ (Ans)}$$

Q4.

$$P(\text{at least 1 wrong}) = 1 - P(\text{no wrong})$$

$$= 1 - P(\text{all correctly placed})$$

$$= 1 - \frac{1}{10!} \text{ (Ans)}$$

Q5. Probable Getting odd product from 1, 3, 5, 7 or 9.

$$\therefore \text{Probability} = \frac{5}{10} = \frac{1}{2} \text{ (Ans)}$$

19 Friday
Day (139-226)



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Q6. 6B, 4R, 2W, 3B
P(both white or blue) = $\frac{2C_2}{15C_2} + \frac{3C_2}{15C_2}$

$$= \frac{1}{15 \times 14} + \frac{3 \times 2}{15 \times 14}$$

$$= \frac{2+6}{210} = \frac{8}{105}$$

$$= \frac{4}{105} \text{ (Ans)}$$

Q7. 6O, 2P, 4Y, 3G
P(2 oranges) = $\frac{6C_2}{15C_2} = \frac{6 \times 5}{15 \times 14} = \frac{1}{7}$

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Q8. 10R, 16G

P(1st red & 2nd green) =

~~$$\frac{10C_1 \times 16C_1}{26C_2} = \frac{10 \times 16}{26 \times 25} = \frac{16}{65}$$~~

$$= \frac{10C_1 \times 16C_1}{26C_1 \times 25C_1} = \frac{10 \times 16}{26 \times 25} = \frac{16}{65} \text{ (Ans)}$$

Q9. P(face card) = $\frac{12C_1}{52C_1}$

$$= \frac{12}{52} = \frac{3}{13} \text{ (Ans)}$$

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22 Monday
Day (142-223)

Q10. 1st correct ans: C

$$\Rightarrow 4C - (94 - C) = 141$$

$$\Rightarrow 5C = 235 \Rightarrow C = 47$$

(Ans)

Q11. $P(4 \text{ out of } 9) = {}^9C_4 = \frac{9 \times 8 \times 7 \times 6}{4 \times 3 \times 2 \times 1} = 126$

$P(\text{selecting 2 women from}) = {}^2C_2 \times {}^7C_2 =$

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May 2023

23 Tuesday
Day (143-222)

Q12. $P(\text{either heart or diamond})$

$$= \frac{{}^{13}C_1}{{}^{52}C_1} + \frac{{}^{13}C_1}{{}^{52}C_1}$$

$$= \frac{26}{52} = \frac{1}{2} \text{ (Ans)}$$

Q13. (even on one) = $(2,1)(2,3)(2,5) \dots (2,6)$
 $(4,1)(4,3)(4,5) \dots (4,6)$
 $(6,1)(6,3)(6,5) \dots (6,6)$

(multiple of 3) = $(3,1)(3,2)(3,3) \dots (3,6)$

$\therefore P(\text{getting}) = 1 - P(\text{getting})$
 $= 1 - \frac{{}^9P_1}{{}^{52}P_1} \left(\frac{6}{52} \right)$

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24 Wednesday

Day (144-221)

Q14. $P(K) = 0.8$, $P(B) = 0.6$.

$$P(K \cup B) = P(K) + P(B) - P(K \cap B)$$

if K, B disjoint $\Rightarrow P(K \cap B) = 0$

$$\Rightarrow P(K \cup B) = 0.8 + 0.6 = 1.4 > 1$$

and probability can't be greater than 1.

$\Rightarrow K$ and B are not disjoint.

Q15. multiple of 4 = 4, 8, 12, 16, 20
multiple of 15 = 15

$$P = \frac{6}{20} = \frac{3}{10} \quad (\text{Ans})$$