

(1) number of days = 366, week has 7 days

number of (Sund) in a leap year = $366/7 = 52$ Sund + 2 days

(T) outcomes = (S, M), (M, T), (T, W), (W, T), (T, F), (F, S), (S, S) = 7

~~Not~~ Num of outcomes without Sundays = 5
 $\therefore P = \frac{2}{7}$

(2) $P(6) = 0$

مفید کرات سودا

(3) $P = 1 - 0.85 = 0.15 = \frac{3}{20}$

(4) $C(9, 8, 12) \therefore P = \frac{3}{15} = \frac{1}{5}$

(5) $2^3 = 8$

(6) $C(2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31) \therefore P = \frac{11}{35}$

(7) $P = 1$

(8) $\frac{7}{5}$

مسئله اکبریت (1)

(9) $C(H, H, H), (H, H, T), (H, T, H), (H, T, T), (T, H, H), (T, H, T), (T, T, H), (T, T, T)$
 $\therefore P = \frac{9}{8} = \frac{1}{2}$

(10) there are 6 variables $\therefore P = \frac{6}{13}$
 $\therefore P(C) = \frac{7}{13}$

(11) even $C(N) = 2, 4, 6 \therefore P = \frac{3}{6} = \frac{1}{2}$

(12) $2^2 = 4 \therefore P = \frac{1}{4}$

(13) $T, C = 6^2$
 $\therefore S = (S, 9), (9, S), (6, 3), (3, 6) \therefore P = \frac{4}{36} = \frac{1}{9}$

(14) $2, 3, 5, 7, 11, \dots \therefore P = \frac{25}{100} = \frac{1}{4}$

(15) blue = x, the T = 54x
 $\frac{x}{54x} = 2 \times (5/54x) \therefore x = 10$

(16) $P(CN-d) = 1 - P(Cd)$
 $= 1 - (12/600) = \frac{192}{150}$

(17) $S = (0, 9, 9, 16, \dots) \therefore P = \frac{9}{100}$

(18) $P = \frac{2}{7}$

$$(19) \text{ 4 ways, 2 of red colour } \therefore P = \frac{2}{4} = \frac{1}{2}$$

$$(20) (1, 1, 5, 7, 9, 11) \therefore P = \frac{6}{12} = \frac{1}{2}$$

$$(21) S = (H, H, H) (H, H, T) (H, T, H) (T, H, H) (H, T, T) (T, H, T) (T, T, H) (T, T, T) \\ \therefore P = \frac{6}{8} = \frac{3}{4}$$

$$(22) P = \frac{1}{365}$$

$$(23) (-1, 0, 1) \therefore P = \frac{2}{5}$$

$$(24) P(C) = 1 - P(r) \\ \lambda/29 = 1 - (2/11) \therefore \lambda = 8$$

$$(25) (3, 6, 9, 12 \text{ --- } 98) \\ (9, 8, 17, 16 \text{ --- } 98) \therefore P = \frac{9}{50} = \frac{2}{25}$$

$$(26) P(n) = kn \quad P(1) + P(2) + \dots + P(n) = 1 \quad k(1+2+3+\dots+n) = 1 \quad \therefore k = \frac{1}{21} \\ \text{hence } P(0) = 0 \quad k = \frac{1}{21}$$

$$(27) \frac{50+70+82+92+20}{5} = 63 \therefore S_d = 25, 79$$

$$(28) (n+1)^2 \text{ for } n=9 \text{ (odd)} = 13 \text{ answer} = 6 \\ \text{mode} = 18$$

$$(29) P(X=3) = P(Y=3) = \frac{1}{2}$$

$$(30) F(X) = X^2 \text{ from } 0 \text{ to } 9 = 32 = 9 \quad (d)$$

$$(31) \text{var}(X) = 0.2 \quad \text{var}(Y) = 0.5 \\ Z = 5X - 2Y \\ \therefore \text{var}(Z) = 7$$

$$(32) P(Y) = 0.5$$

$$(33) E(2-X) = 4 - 2 = 2$$

$$(34) \text{independent answer} = 0 \quad (b)$$

$$(35) [P(X) \times k^2 - 8 = 1 \therefore k = 3]$$

$$(36) E(X) \times P(X) = 0.5 \times 9 = 2$$

$$(37) P = C(1) \quad (c)$$

$$(38) P = 0.9 \quad q = 1 - P = 0.1 \\ \therefore P_2 = 0.27$$

$$(39) P = 0.1 \quad \text{and } q = 0.9 \quad n = 10 \quad np = 6 \\ \therefore nPq = (10)(0.1)(0.9) = 2.9$$

$$(90) \quad p = 0,5 \quad n = 8 \quad q = \frac{1}{2} \quad \therefore np = 8 \times \frac{1}{2} = 4$$

(91) answer (a)

$$(92) \quad E(X) - (E(X))^2$$

$$(93) \quad E(X)$$

$$(94) \quad \sqrt{F(X)} = \sqrt{a(1)} = a$$

$$(95) \quad \sqrt{a} = E(a^2) - (E(X))^2 = a^2 - a^2 = 0$$

$$(96) \quad E(X) = [F(X) = 0(1/9) + 1(2/9) + 2(3/9) + 3(2/9) + 4(1/9)] = 2$$

$$\sqrt{X} = E(X^2) - (E(X))^2 = 9/3$$

$$(97) \quad E(X) = 0(1/6) + 1(2/6) + 2(2/6) + 3(1/6) = 1,5$$

$$(98) \quad \text{answer} = (6)$$

$$(99) \quad P(X=x) = nCx \cdot p^x \cdot q^{(n-x)}$$

$$(100) \quad \sigma_d = \sqrt{\sigma_r} = \sqrt{npq}$$