

3]

Red	3
Black	5

white	4
Black	7

$$P(A) = P(B) = 1/2$$

$$P(B|A) = 5/8$$

$$P(B|B) = 7/11$$

$$P(B|B) = \frac{P(B) \times P(B|B)}{P(A) \times P(B|A) + P(B) \times P(B|B)}$$

$$= \frac{1/2 \times 7/11}{1/2 \times 5/8 + 1/2 \times 7/11}$$

$$= \frac{7/11}{5/8 + 7/11}$$

$$= \frac{7/11 \times 88/11}{5/8 \times 88/11 + 7/11 \times 88/11}$$

$$= \frac{56}{56 + 77}$$

$$= 0.50450$$

6)

$$Z = \frac{x - \mu}{\sigma}$$

$$0.675 = \frac{x - 350870}{12405}$$

$$x = 350870 + (0.675 \times 12405)$$

$$x = 359237.045$$

$$75^{\text{th}} \text{ Percentile} = 359237.045$$

4)

Given

450 Application in , hour.
By Poisson Distribution

$$a) \lambda = \frac{450}{60}$$

$$\lambda = 15/2, x = 10$$

$$P(x=x) = \frac{e^{-15/2} (15/2)^{10}}{10!}$$

$$= 0.0858$$

$$b) P(x=x) = \frac{e^{-15/2} (15/2)^{17}}{17!}$$

$$= 0.6321$$

- 1) Cards = 52
 Diamond = 13
 Heart = 13
 Spade = 13

$$\begin{aligned} \text{Required Probability} &= \frac{13C_1 \times 13C_1 \times 13C_1}{52C_3} \\ &= \frac{13 \times 13 \times 13}{52 \times 51 \times 50} = \frac{13 \times 12 \times 13}{52 \times 51 \times 50 / 3 \times 2 \times 1} \\ &= \frac{169}{6800} \end{aligned}$$

- 2)
- Action movies = 42% $\rightarrow P(A)$
 - Comedy movies = 54% $\rightarrow P(B)$
 - Drama movies = 36% $\rightarrow P(C)$
 - Horror movies = 12% $\rightarrow P(D)$

a) either action or drama

$$\begin{aligned} P(A \cup C) &= P(A) + P(C) - P(A \cap C) \\ &= 42 + 36 = 0 \\ P(A \cup C) &= 78/100 \end{aligned}$$

b) either comedy or horror

$$\begin{aligned} P(B \cup D) &= P(B) + P(D) - P(B \cap D) \\ &= 54 + 12 = 0 \\ P(B \cup D) &= 66/100 \end{aligned}$$