1). Probability that one card is diamond, one card is heart and one is Spade

Solution

No. of Cards = 52

Diamond Cards = 13

heart = 13

Spade = 13

A Cards drawn without replacement

$$= \frac{13}{52} \times \frac{13}{51} \times \frac{13}{50} = \frac{2197}{132600}$$

$$= 0.25 \times 0.25 \times 0.26$$

$$= 0.0165$$

2) Find the Probability that his on her

Total Percentage = 100

Action Movies = 42% = 42/100

Comedy Movies = 54% = 54/100

Drama Movies = 36% = 36/100

Horror Movies = 12% = 12/100

a). favourite is either action or drama

$$\frac{42}{100} + \frac{36}{100} = \frac{78}{100}$$

$$= 0.78$$

b). favourite either Comedy or horror

$$\frac{54}{100} + \frac{12}{100} = \frac{66}{100} = 0.66$$

3).

A = 3 red, 5 black

B = 4 white, 7 black

$$P\left(\frac{Black}{A}\right) = \frac{5}{8} \quad ; \quad P\left(\frac{Black}{B}\right) = \frac{7}{11}$$

$$P\left(\frac{B}{Black}\right) = \frac{P(B) \times P\left(\frac{Black}{B}\right)}{P(A) \times P\left(\frac{Black}{A}\right) + P(B) \times P\left(\frac{Black}{B}\right)}$$

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

$$= \frac{7/22}{0.630}$$

$$= 0.505$$

6) $M = 350870$

$\sigma = 12405$

$Z = 75 \Rightarrow 0.675$

Percentile $= 350870 + (0.675) \times (12405)$ $[\because M + z\sigma)$

$= 359,243.375$