STATISTICS TEST

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1) S = 52 cards. (without Replacement).

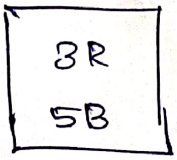
(3 cards Drawn)

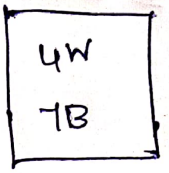
P(one card is diamond, one card is heart, one card is spade)

$= P(\text{Diamond}) \times P(\text{heart}) \times P(\text{spade})$

$= \frac{13}{52} \times \frac{13}{51} \times \frac{13}{50} = \frac{169}{10200}$

3) BAG A





Bag B

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

$P(A, Bl) = 5/8$

$P(B, Bl) = 7/11$.

$P(\text{Black}) = P(A \cap Bl) + P(B \cap Bl)$

(or)

$P(Bl)$

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

$= 1/2 \left[\frac{5}{8} + 7/11\right] = 1/2 \left[\frac{55+56}{88}\right]$

$= 1/2 \left[\frac{111}{88}\right]$.

$P\left(\frac{B}{Bl}\right) = \frac{P(B \cap Bl)}{P(Bl)} = \frac{1/2 \times \frac{7}{11}}{1/2 \times \frac{111}{88}} = \frac{7}{11} \times \frac{8}{111} = \frac{56}{111}$ //.

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6) 75th percentile value = ?

Average = $850870.

St. D = $12405.

percentile value = Average + (z × S.D)

where z ⇒ z table value.

(z value for 75th percentile = 0.67)

= 350870 + (0.67 × 12405)

= 350870 + 8311.35

75th percentile value = 359181.35 //.

2) Action Movies = 42%.

Comedy movies = 54%.

Drama Movies = 36%.

Horror movies = 12%.

144

a) P(action (or) Drama) = P(Action) + P(Drama)

$= \frac{42}{144} + \frac{36}{144} = \frac{78}{144}$ //

b) P(comedy (or) Horror) = P(comedy) + P(Horror)

$= \frac{54}{144} + \frac{12}{144} = \frac{66}{144}$ //

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4) 450 Applications in 1 hour.

By Poisson Distribution,

a) $\lambda = \frac{450}{60} = 15/2$

$\boxed{x = 10}$

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

$$= 0.0858.$$

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

$$= 0.6321.$$