

Solution to 10.13.3.41

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Question: A bag contain 24 balls of which x balls are red, $2x$ are white and $3x$ are blue. A ball is selected at random, What is the probability that it is

a) not red ?

b) white ?

Solution: Let

$$X = \begin{cases} 0, & \text{If ball is red} \\ 1, & \text{If ball is white} \\ 2, & \text{If ball is blue} \end{cases} \quad (1)$$

$$\text{Total number of balls} = x + 2x + 3x = 24 \quad (2)$$

$$\implies 6x = 24 \quad (3)$$

$$\implies x = 4 \quad (4)$$

a)

$$(p_X(0))' = 1 - p_X(0) \quad (5)$$

$$= 1 - \frac{x}{24} \quad (6)$$

$$= \frac{5}{6} \quad (7)$$

b)

$$p_X(1) = \frac{2x}{24} \quad (8)$$

$$= \frac{1}{3} \quad (9)$$