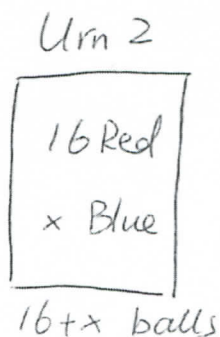
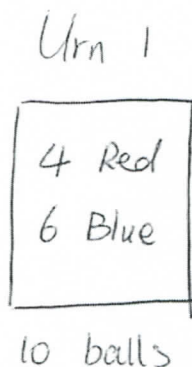


Exam P 004 (General Probability)



We are given:

$$\Pr(2 \text{ balls of same color}) = 0.44$$

$$= \Pr(2 \text{ Red}) + \Pr(2 \text{ Blue})$$

$$= P(R_1 \cap R_2) + P(B_1 \cap B_2)$$

since Urn 1 & Urn 2 are independent

$$= P(R_1)P(R_2) + P(B_1)P(B_2)$$

$$= \left(\frac{4}{10}\right)\left(\frac{16}{16+x}\right) + \left(\frac{6}{10}\right)\left(\frac{x}{16+x}\right) = 0.44$$

Multiply everything by $(10)(16+x)$

$$\text{We get } (0.44)(10)(16+x) = 4(16) + 6x$$

$$70.4 + 4.4x = 64 + 6x$$

$$x = \boxed{4}$$