

$$1) \quad 1 \quad \frac{14}{15} \quad \frac{13}{15} \quad \frac{12}{15} \quad \frac{11}{15} \quad \frac{10}{15} \quad \frac{9}{15} \quad \frac{8}{15}$$

$$\frac{14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8}{15^7}$$

$$\sim .10124$$

$$2) \quad 0-100$$

not possible

$$100-1000$$

$$5 \cdot 4 \cdot 5 = 100$$

$$1000 \sim 10000$$

$$5 \cdot 4 \cdot 7 \cdot 5 = 700$$

$$10000 - \text{and and}$$

$$5 \cdot 4 \cdot 7 \cdot 6 \cdot 5 = 4200$$

$$100 + 700 + 4200 = 5000$$

Total # / required images $\rightarrow 10^5$

$$\frac{5000}{10^5} = .05$$

$$3) \quad P(A) = P(X=2) + P(X=3) = 3C_2 \cdot \left(\frac{3}{6}\right)^2 \cdot \frac{3}{6} + 3C_3 \cdot \left(\frac{3}{6}\right)^3 \left(\frac{3}{6}\right)$$

$$= \frac{1}{2}$$

$$P(B) = \frac{6}{6^3} = \frac{1}{36}$$

$$P(A \cap B) = \frac{1}{6^3} + \frac{1}{6^3} + \frac{1}{6^3} = \frac{1}{12}$$

$$\frac{1}{2} \cdot \frac{1}{36} = \frac{1}{72},$$

$$P(B) \cdot P(A) \neq P(A \cap B)$$

A and B are independent

$$1) p = \frac{4 \cdot 1365}{5265}$$

$$E(x) = \frac{1}{p} = \frac{5265}{4 \cdot 1365} = 504.8$$

$$2) \begin{aligned} \text{win 4/5 \& plays} &= {}_5C_4 \cdot .7^4 \cdot .3 = .36015 \\ \text{win 2/5 \& no play} &= {}_5C_4 \cdot .5^5 = .15625 \end{aligned}$$

$$P(\text{win 4/5}) = .15625(.75) + .36015(.75) = .309175$$

$$P(\text{superstar plays} \mid \text{win 4/5}) = .36015 \cdot .75 / .309175 = .8737$$