

Section 2: cont'd

Monday, March 20, 2017 1:02 PM

handout #8

h) 7-digit password, digits from 0 to 9

probability that a password starts with 29 or ends with 1

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

let A = starts with 29

B = ends with 1

$$P(A) = \frac{1 \cdot 1 \cdot 10^5}{10^7} = \frac{1}{100} \text{ or } 0.01 \text{ or } 1\%$$

$$P(B) = \frac{10^6 \cdot 1}{10^7} = \frac{1}{10} \text{ or } 0.1 \text{ or } 10\%$$

$$P(A \text{ and } B) = \frac{1 \cdot 1 \cdot 10^4 \cdot 1}{10^7} = \frac{1}{1000} \text{ or } 0.001 \text{ or } 0.1\%$$

$$P(A \text{ or } B) = P(A) + P(B) - P(\text{both})$$

$$\approx 0.01 + 0.1 - 0.001 = 0.109$$