

C10-1 2/18/20

YES CALCULATOR ALLOWED.

Q1 PICK PEOPLE FOR BASEBALL TEAM.
SIZE = 9

PICKING FROM 100 PEOPLE

TEAM POSITIONS ARE NAMED.

HOW MANY TEAMS?

$$100 \times 99 \times 98 \cdots 92 = \frac{100!}{91!}$$

2 BIVOTIAL

$$P(\text{GOT TO 6 GAMES}) = \binom{6}{3} \cdot 6^3 \cdot 4^3$$

$$P(\text{ALB WINS}) =$$

$$P(A \text{ WIN IN } 4) + P(A \text{ WIN IN } 5) + \cdots$$
$$6^4 \quad \binom{4}{2} \cdot 6^2 \cdot 4^2 \cdot 6$$

$$6 + 0 + \binom{6}{3} \cdot 6^3 \cdot 4^3 \cdot 6$$

C10-2

$$3 \quad P(H|A) = 1 \quad P(H|B) = .5$$

$$P(A) = \frac{1}{2}$$

WANT $P(A|H)$

$$P(H) = P(H|A)P(A) + P(H|B)P(B) = \frac{3}{4}$$

$$P(H \& A) = \frac{1}{2}$$

$$P(A|H)P(H) = P(H \& A)$$

$$P(A|H) = \frac{\frac{1}{2}}{\frac{3}{4}} = \frac{2}{3}$$

$$4 \quad S = \{1 \dots 22\}$$

$$P(\text{EVEN}) = \frac{1}{2} \quad P(\text{MULT OF } 4) = \frac{5}{22}$$

$$P(\text{EVEN} \& \text{MULT OF } 4) = \frac{5}{22}$$

$$\text{IS } \frac{1}{2} \times \frac{5}{22} = \frac{5}{22} \quad \text{FALSE}$$

NOT INDEP

Q10-3

Q8

Poisson

$$P(k) = \frac{e^{-\alpha} \alpha^k}{k!}$$

$$\alpha = 5 \quad P(0) = \frac{e^{-5} 5^0}{0!} = \frac{1}{e^5}$$

$$Q8 \quad P(G) = .9 \quad P(A|G) = 2^{-x} \quad P(\bar{A}|\bar{G}) = 3^{-x}$$

$$P(A) = P(A|G)P(G) + P(A|\bar{G})P(\bar{G})$$

$$2^{-x} \cdot .9 + 3^{-x} \cdot .1$$

$$P(G|A)P(A) = P(G \cap A) = 2^{-x} \cdot .9$$

$$P(G|A) = \frac{.9}{.9}$$

$$P(A_3|A_2) = \frac{P(A_3 \cap A_2)}{P(A_2)} = \frac{P(A_3)}{P(A_2)}$$

Q10-4

$$P(A^3|A^2) = \frac{2^{-3} \cdot 9 \cdot 3^{-3} \cdot 1}{2^{-2} \cdot 9 + 3^{-2} \cdot 1} =$$