APPLICATIONS: NOT PRACTIAL TO ENUMERATE

(LIST ALL POSSIBLE OUTCOMES)

LICENSE PLATES WITH 6 SYMBOLS, EACH CAN BE

LETTER 26, DIGIT 10

POSSIBLE ALLOWING REPEAT SYMBOLS

$(36)^6 =$

INDEPENDENCE

2 EVENTS ARE INDEP. IF OBSERVING ONE DOES NOT AFFECT THE PROB OF OTHER.

(1) DEFN

A & B ARE INDEP. $\overset{IFF}{\Longleftrightarrow}$ $P[AB] = P[A] \cdot P[B]$

RELATED RELATIONSHIPS IF A & B ARE INDEPENDENT

$P[A|B] = P[A]$ & $P[B|A] = P[B]$

SOME SIMILARITY INFORM TO A & B BEING MUTUALLY EXCLUSIVE

M.E. $\Rightarrow P[A \cup B] = P[A] \cup P[B]$

QUIZ 1.3 A STUDENT TEST SCORE T IS AN INTEGER BETWEEN 0 & 100

CORRESPONDING TO THE EXPERIMENTAL OUTCOMES $S_0, \ldots, S_{100}$

A SCORE OF 90 TO 100 IS AN A

80 TO 89 IS A B

70 TO 79 IS A C

60 TO 69 IS A D

0 TO 60 IS A F

IF ALL SCORES BETWEEN 51 AND 100 ARE EQUALLY LIKELY

AND SCORES BETWEEN A SCORE OF 50 OR LESS NEVER OCCURS

FIND THE FOLLOWING.

THERE ARE 50 EQUALLY LIKELY OUTCOMES: S_{51} THROUGH S_{100}

EACH OUTCOME HAS THE PROBABILITY 1/50

$P[\{S_{100}\}] = 1/50 = 0.02$

$P[A] = P[\{S_{90}, \ldots, S_{100}\}] = 11/50 = 0.22$

$P[F] = P[\{S_{51}, \ldots, S_{59}\}] = 9/50$

$P[T < 90] = P[\{S_{51}, \ldots, S_{89}\}] = 39/50$

$P[\text{C OR BETTER}] = P[\{S_{70}, \ldots, S_{100}\}] = 31/50$

$P[\text{STUDENT PASSES}] = P[\{S_{60}, \ldots, S_{100}\}] = 41/50$

THERE ARE 50 EQUALLY LIKELY OUTCOMES

$P[S_{100}] = 1/50$

$P[A] = 9/50$