

HW Chapter 5 AP TEST

I

MC SEE "R5 CLASS WORK REVIEW" ANSWER KEY

II SECTION 2: FREE RESPONSE

T5.11 (A) 48 Possible Outcomes

A = TEACHER WINS (27 times)

T = TIE

$$P(\text{TEACHER WINS}) = P(A) = \frac{27}{48} = \frac{9}{16} \text{ or } .5625$$

(B) B = You GET A 3 ON
YOUR FIRST ROLL

$$P(A \cup B) = P(A) + P(B) - P(A \cap B) \\ = \frac{27}{48} + \frac{8}{48} - \frac{5}{48} = \frac{30}{48} = \frac{5}{8} \text{ OR } .625$$

(C) ARE EVENTS A and B INDEPENDENT?

TO VERIFY CHECK $P(A|B) = P(A)$ and $P(B|A) = P(B)$

These are
the formulas
and prob.
from above
parts

$$P(A) = \frac{27}{48}$$

$$P(B) = \frac{8}{48}$$

$$P(A \cap B) = \frac{5}{48}$$

$$P(B|A) = \frac{P(A \cap B)}{P(A)}$$

$$* P(A) = P(A|B)$$

$$\frac{27}{48} = \frac{P(A \cap B)}{P(A)} = \frac{5/48}{27/48} = \frac{5}{27}$$

$$\frac{5}{48} \cdot \frac{48}{27}$$

$$\frac{27}{48} \neq \frac{5}{27}$$

SINCE THESE ARE NOT EQUAL, THE EVENTS ARE
NOT INDEPENDENT

FROM MACHINE 5.

		TEACHER							
		1	2	3	4	5	6	7	8
you	1	(T)	A	A	A	A	A	A	A
	2		(T)	A	A	A	A	A	A
	3	B	B	B	(T)	B	B	B	B
	4				(T)	A	A	A	A
	5					(T)	A	A	A
	6						(T)	A	A

T5.14

$$P(\text{OUT OF STATE}) = .17$$

(a)

SIMULATION DESIGN

- ① ASSIGN THE NUMBERS 01-17 TO REPRESENT OUT OF STATE CARS
- ② IGNORE ~~REPEATS~~^{oops}, 00, 18-99
- ③ START READING 2-DIGIT NUMBERS FROM A RANDOM TABLE UNTIL YOU GET 2 NUMBERS BETWEEN 01 AND 17.
- ④ Repeat many times for simulation

(b)

3 REPETITIONS (NOTE - DO NOT CHANGE LINES FOR EACH SIMULATION)

#1: 41, 05, 09 - 3 cars to get 2 out of state

#2: 20, ~~31~~, 06, 44, 90, 50, 59, 59, 88, 43, 18, 80, 53, 11 - 2 cars out of 14

#3: 58, 44, 69, 94, 86, 85, 79, 67, 05, 81, 18, 45, 14

2 OUT OF STATE CARS OUT OF 13