Wednesday, May 1, 2019

- Warm-up

  $$\left(\tfrac{1}{2}\right)\left(\tfrac{1}{2}\right)\left(\tfrac{1}{2}\right)\cdots\left(\tfrac{1}{2}\right)^{10}$$

  - Which would you find more surprising?

    H T H T H

    A. Flipping a fair coin 10 times and getting all tails

    $$\left(\tfrac{1}{2}\right)\left(\tfrac{1}{2}\right)\left(\tfrac{1}{2}\right)\cdots$$

    OR

    B. Flipping a fair coin 50 times and getting all tails

  - Why? *Law of Large Numbers* $\left(\tfrac{1}{2}\right)^{50}$

- Test

Questions?

Independence
↳ one event
does not effect
the probability
of the other

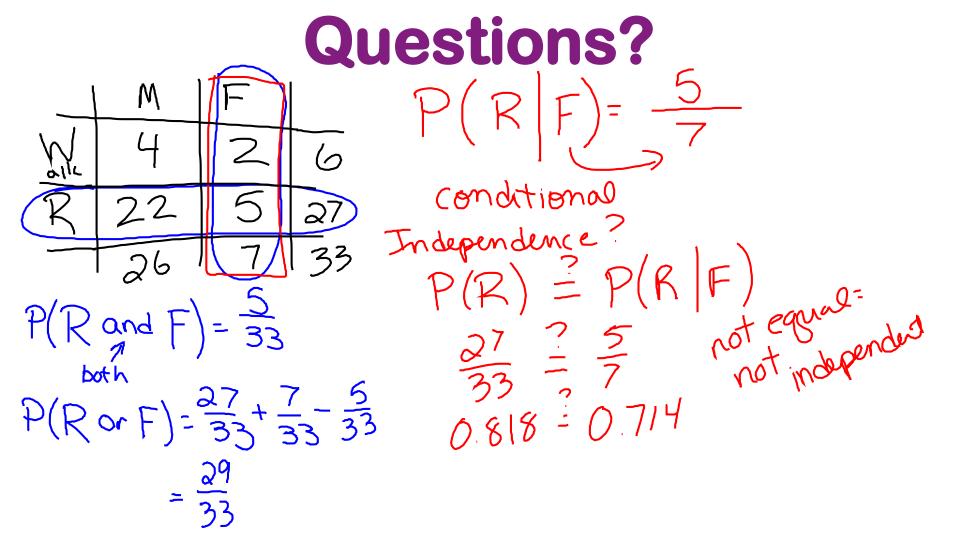Mutually Exclusive
no overlap
events cannot happen
at the same time

coin flip
dice roll
card draw
w/replacement

Q and K

rolling an
even and odd

$$P(A) = \boxed{P(A|B)}$$

$$P(Q) \stackrel{?}{=} P(Q|Q)$$
w/replace

$$\frac{4}{52} = \frac{4}{52}$$

$$P(A \text{ and } B) = 0$$

Questions?

	M	F	
W all	4	2	6
R	22	5	27
	26	7	33

$P(R \text{ and } F) = \frac{5}{33}$

both

$P(R \text{ or } F) = \frac{27}{33} + \frac{7}{33} - \frac{5}{33}$

$= \frac{29}{33}$

$P(R|F) = \frac{5}{7}$

conditional

Independence?

$P(R) \stackrel{?}{=} P(R|F)$

$\frac{27}{33} \stackrel{?}{=} \frac{5}{7}$

$0.818 \stackrel{?}{=} 0.714$

not equal = not independent

Objectives
Content: I will <u>demonstrate my</u> knowledge of the unit through my success on the test.
Social: I will <u>be respectful to my</u> classmates so they may be successful.
Language: I will <u>read</u> questions carefully and use clear vocabulary in my solutions.

Test

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PRINCIPAL

ANDERSON

"I wish we hadn't learned probability 'cause I don't think our odds are good."

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