

QuizExample of Independent events

flipping a coin multiple times

Rolling dice.

selecting two cards from a deck with replacement.

Dependent events

selecting two cards from a deck without replacement.

$$P(2 \text{ red cards}) = \frac{26}{52} \times \frac{25}{52} \cdot (\text{without replacement}).$$

Independent example

Roll a die and flip a coin

$$P(2 \text{ red}) = \frac{26}{52} \times \frac{26}{25} \cdot (\text{without replacement}).$$

$$a) P(\text{male}) = 288/759.$$

$$b) P(\text{male/urban}) = \frac{92}{265}.$$

~~1880~~ NO.

$$b) P(F) = \frac{471}{759}$$

$$P(S) = \frac{494}{759}$$

$$P(F|S) = \frac{298}{494}$$

NO, fraction doesn't match.

$$a. (1 - .98)(1 - .98) = P(\text{drug-free fail both tests})$$

$$b. \frac{.02 \times .02}{.98 \times .98} = P(\text{drug-free user fails both tests}) = .02 \times .02$$

$$P(\text{drug free person found to be drug free}) = 1 - .0004 = 99.96\%$$

$$a. \frac{19}{42} \times \frac{18}{41}$$

NO, because without replacement.

$$b. \frac{22}{42} \times \frac{21}{41} \times \frac{20}{40}$$

or