

MATH230 Week 7 Worksheet - Conditional Probability

1: The casino dealer shuffles 10 cards labeled 1-10 and flips them all over. Given the first card is a 2, what is the probability that the last two cards are even?

2: When Denis Assanis drives to work, he's late 20% of the time. When he takes the bus, he is late 30% of the time. Assanis drives 40% of the time and takes the bus 60%. On a given day Assanis is late, what is the probability that he took the bus that day?

3: A bag contains fair coins and exactly one coin that has heads on both sides. You randomly select a coin from the bag and flip it 6 times, and it lands on heads all 6 times. If the probability that the coin you selected is a two-headed one after seeing these flips is $\frac{2}{3}$, how many fair coins were in the bag?

4: According to U.S. roadside surveys, only 3% of drivers at any given time on the road are drunk. Using this observation and the image below, calculate how much more likely you are to cause a fatal car crash if you are drunk vs if you are sober. That is, if x , y are the crash probabilities for being drunk, sober respectively, compute the ratio x/y .

