Week 1 – BIA 652

1. Flipping a coin 3 times, the probability of getting exactly 2 tails is \_\_\_\_\_?

Exactly 2 tails –

4 times =

S = {HHH, HHT, HTH, HTT, THH, THT, TTH, TTT} & successful events for getting at least 2 tails A = {HTT, THT, TTH, TTT}

4/8 = ½ -- atleast 2 tails

Exactly 2 tails – 3/8

1. In a sequence of 10 flips of a coin, if the coin is fair, what is the probability of exactly 3 heads in 10 flips?

Total no of events 2^10 = 1024

the probability of exactly 3 heads == 10C3 = 10!/3!(10-3)! = 10!/3!7! = 120

1. In a 5-card hand from a deck of 52, there are (52\*51\*50\*49\*48)/(5\*4\*3\*2\*1) different possible hands. Order doesn’t maWer, so there are 2,598,960 possible hands. What is the probability of 4 of a kind (4 of the same card with the same number plus one other)?

4. Of the cars on a used car lot, 70% have air condi8oning (AC) and 40% have a CD player (CD). 20% of the cars have both.

What is the probability that a car has a CD player, given that it has AC ?  
What is the probability that a car has AC, given that does NOT have a CD player ?

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5. In a certain county

* 60% of registered voters are Republicans
* 30% are Democrats
* 10% are Independents.

When those voters were asked about increasing military spending ·

* 40% of Republicans opposed it
* 65% of the Democrats opposed it
* 55% of the Independents opposed it.

What is the probability that a randomly selected voter in this county opposes increased military spending?

6.

Suppose that an office receives telephone calls randomly. The number of calls in a 5-min. interval follows a Poisson distribu8on with parameter λ = 2.5.

What is the probability of no calls in a 5-min interval?

What is the probability of two or more than two calls in a 5-min interval?

What is the probability of no calls in a 10-min interval?