**Activity 1**

* ATM security codes are four digits long. How many security codes contain two or fewer zeros?
* Classes using the Code.org website are assigned a six letter code. How many of those codes contain two or more vowels? [The exact answer isn’t necessary. Just set it up]
* How many cards in a normal deck of playing cards are either face cards or hearts?
* Donuts from “The Hole-in-One Donut Shop” come topped with frosting, sprinkles, or both. Philip Onsugar notices that in his box of a dozen donuts eight have frosting and nine have sprinkles. How many have both?

**Activity 2**

30 “senior” computer science students are surveyed.

* 18 have taken Networking
* 19 have taken User Interface Design (UID)
* 16 have taken Artificial Intelligence (AI)
* 10 have taken Networking and UID
* 9 have taken Networking and AI
* 9 have taken UID and AI
* How many have taken all three courses?

**Activity 3**

In two card poker you are dealt two, and only two cards. For the sake of this discussion let’s assume that Aces are ALWAYS “high cards”

* How many total “hands” are possible?
* For each of the following hand outcomes determine how many are possible.
  + Pair (two of the same rank, such as two Kings)
  + Straight Flush (two cards in a row of the same suit such as Ace and King of Hearts or 2 and 3 of Diamonds).
  + Straight (two cards in a row of different suites such as Ace of Hearts and King of Spades).
  + Flush (two non-consecutive cards of the same suit such as 6 and 9 of Clubs)
  + High Card (two cards that do not make any of the previous hands, such as 6 of Clubs and 9 of Diamonds)