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5.2: The pigeon hole Principle

CS 225

7th edition: {4, 6, 14, 32, 36}

4) a) N/2 = 3, N = 5

b) 13 balls

6) N = d + 1, k = 2. d+1 / d = 2 will have the same remainder

14) a) there are 5 subsets that add up to 11. The pigeon hole principle states 6/5 = 2 numbers from the first 6 integers will add up to 11. 4 + 7, and 5 + 6.

b) No, there will only be one subset, 5 +6

32) Earning less than 1 million dollars to the penny means 99,999,999 possible wages. N/k = 100,000,000 / 99,999,999 = 2 persons will earn the same amount

36) Every computer has a connection to at least one other computer, then the numbers of connection is between 1 and 5. With 6 computers, N = 6, k =5. 6/5 = 2 computers are connected to the same number of other computers.