1. 1. The range would be [k, k+n-1], if there are no ACK then it will be [k-n, k-1]. So averaging it together would make it [k-n, k].
   2. Possible acks would be [k-n-1, k-1] in case packets are lost and duped or if all pacers make it, the acks would either 0 or the last ack sent
2. 1. Assuming it arriving in order without mishaps
      1. Seq: 127+80 = 207
      2. Source: 302
      3. Destination: 80
   2. 1. Seq: 207
      2. Source: 80
      3. Destination: 302
   3. Ack number: 127
   4. 

1. 1. EstimatedRTT = (1-a)PrevEstimatedRTT + (a)SampleRTT
      1. ERTT 1 = SampleRTT1
      2. ERTT 2 = (a)SampleRTT1 + (1-a)^1(a)SampleRTT2
      3. ERTT 3 = (a)SampleRTT1 + (1-a)^1(a)SampleRTT2 + (1-a)^2(a)SampleRTT3
      4. ERTT 4 = (a)SampleRTT1 + (1-a)^1(a)SampleRTT2 + (1-a)^2(a)SampleRTT3 + (1-a)^3(a)SampleRTT4
   2. =>
2. 1. [1,6], [23,26]
   2. [6,23]
   3. Triple dup ACK
   4. Timeout
   5. ~33 is when slow start ends
   6. 42/2 = 21
   7. 26/2 = 13
   8. 7th
   9. It would be half of the end at 26, 8/2 = 4
   10. The ssthresh will be halved to 21, and the window would be reset to 1.
   11. [17,22] = 50 packets
3. BONUS
   1. Start MSS at 6 and add 1 each round trip, to get to 12 it will be: 6 RTT
   2. Throughput = (n1MSS+n2MSS+..)/n => 8.5 MSS/RTT
4. BONUS
5. 1. Max = = 125 segments
   2. 1. Ave Window = (125\*2) / 3 = 83.333
      2. Ave Throughput = (83.33\*1500\*8) / 0.15 = 6666400 = 6.6664 Mbps
   3. 83.33 / 2 \* 0.15 = 6.24975 seconds