Homework 7

1. Exam Scores are normally distributed with a mean of 75 and a standard deviation of 8.
   1. What is the probability of getting less than 70%?
   2. What is the probability of getting more than 90%?
   3. What is the probability of getting between 70% and 80%?
2. The time between lightning strikes is exponentially distributed with an average time between occurrences of 2 days.
   1. What is the probability of lightning occurring within one day of a prior strike?
   2. What is the probability of lightning occurring within three days of a prior strike?
   3. What is the probability of lightning occurring more than five days after a strike?
3. The speed you are driving is uniformly distributed between 40 and 60 on a city road.
   1. What is the probability you are driving faster than 45?
   2. If you go faster than 55, your probability of getting a ticket is 30%. The ticket fee is uniformly distributed between $100 and $300. If you are driving normally on the road, what is the probability you will pay more than $250 for a ticket?
4. What is the correlation between A and B? What is the correlation between A and C? What is the correlation between B and C? Which data sets are most positively correlated?

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| --- | --- | --- |
| A | B | C |
| 91 | 95 | 93 |
| 69 | 74 | 76 |
| 8 | 3 | 20 |
| 15 | 13 | 49 |
| 58 | 56 | 55 |
| 28 | 30 | 38 |
| 90 | 93 | 8 |
| 92 | 91 | 98 |
| 92 | 92 | 27 |
| 6 | 9 | 20 |
| 56 | 57 | 84 |
| 31 | 32 | 35 |
| 40 | 41 | 16 |
| 5 | 2 | 45 |