

Answer:

1. The conclusion is not justified, having the same results regarding defective circuits is not a conclusion that the process is not better, also 100 samples is a small number so the result may vary.
2. Not necessarily, there would be only a difference of 11% to 12% between the new and old method, it is not a very significant difference.
3. Finding 2 defective circuits is even more evidence that the new process is better than the old one, in this case it would be a difference of 2% to 12% which does demonstrate a more significant improvement



Answer:

1. This is an observational study because the researcher is just observing the blood pressure of the people but not trying to control or manipulate it.
2. The conclusion isn’t well-justified because this information is not enough, there are several factors that must be analyzed first such as the age of the people, their diet, and even with a small group, is hard to get that kind of conclusions



Answer:

1. μ = (1/100) \* (1 \* 70 + 2 \* 15 + 3 \* 10 + 4 \* 3 + 5 \* 2) = 2.21
2. Median = (2+3)/2 = 2.5
3. P (X > 2.21) = (1/100) \* (15 + 10 + 3 + 2) = 0.3
4. P (X > 2.21 + 1.07) = (1/100) \* (10 + 3 + 2) = 0.15



Answer:

1. $70,000 + ($1,000,000 - $100,000)/10 = $81,000 the new mean value is $81.000
2. The median salary is still $55,000



Answer:

1. TTTT, TTTF, TTFT, TFFT, FTFT, FTTF, FFTT, TTFC, TTCF, TFCF, TFFC, TCFT, CFTF, CFTC, CFCT
2. 2 / 16 = 0.125 This is the number of outcomes in the same answer (TTTT and FFFF) divided by the total number of outcomes (16)
3. 4 / 16=0.25 The number of outcomes with one true answer (TFFF, FFTF, FFFT, FTFF) divided by the total number of outcomes (16)
4. 10 / 16= 0.625 The number of outcomes with at most one true answer (TFFF, FFTF, FFFT, FTFF, TFFF, TTFF, TFTF, TFTT, TTTF, TTTF divide by the total number of outcomes (16)



Answer:

1. There are 26 lowercase letters and 10 digits so it’s 36^8 = 2,821,109,907,456
2. The number of passwords without any digits would be just 26 so the number is 26^8 - 36^8 = 2,814,749,767,104
3. To find the probability its necessary divide the Number of passwords with at least one digit / Total number of possible passwords = (36^8 - 26^8) / 36^8 ≈ 0.9346, so the probability is approximately 93.46%



Answer:

1. The probability that students are majority in engineering is 30%
2. The probability that students play club sports is 20%
3. The probability is 10%
4. This probability is the probability of majoring in engineering minus the probability of majoring in engineering and playing club sports. So it’s 0.3 - 0.1 = 0.2 or 20%
5. The probability is 10% because 30 (students major in engineering) - 10% (students in engineering and club sports) so it’s 10%
6. The probability is 10% since there are a 10% of students in club sports and majoring engineering is also 10%



Answer:

1. There are 71 black cars divided by 242 (total number of small cars) = 29.34%
2. There are 87 midsize cars divided by 312 (total number of white cars) = 27.56%
3. There are 22 red cars divided by 118 (total number of large cars) = 18.64%
4. There are 22 large red cars divided by 91 (total number of red cars) = 24.18%
5. There are 118 midsize cars + 118 large cars – 105 gray midsize cars – 40 grey large cars and this is divided by 508 (total number of cars that aren’t small) so 191/508 = 37.61%



Answer:

1. P(A), is equal to the proportion of defective components in the lot, which is 300/1000 = 0.3
2. P(B), is equal to the proportion of defective components in the lot, which is 300/1000 = 0.3.
3. P(B), is equal to the proportion of defective components in the lot, which is 300/1000 = 0.3.
4. P(A|B), is equal to the probability that both components are defective divided by the probability that the second component is defective. This is equal to 0.3 / 0.3 = 1.



Answer:

1. Probability of detecting zero error (0.41) probability of detecting one error (0.72) probability of detecting two errors (0.83) so 0.41 + (0.72 - 0.41) + (0.83 - 0.72) = 0.41 + 0.31 + 0.11 = 0.83
2. The probability that more than three errors are detected is 1- the probability that here or fewer errors are detected, so 1-0.95 = 0.05
3. Probability of detecting one error (0.72) and probability of detecting two errors (0.83) so 0.72 - 0.41 = 0.31
4. From the table the probability that no errors are detected is 0.41



1. The possible values for X are 0, 1, 2, or 3
2. The probability that all three components selected will pass the test is (0.8) ^3 = 0.512
3. The probability that the first component fails is 1 - 0.8 = 0.2, and the probability that the next two components succeed is (0.8) ^2 = 0.64. So P(FSS) = 0.2 \* 0.64 = 0.128.