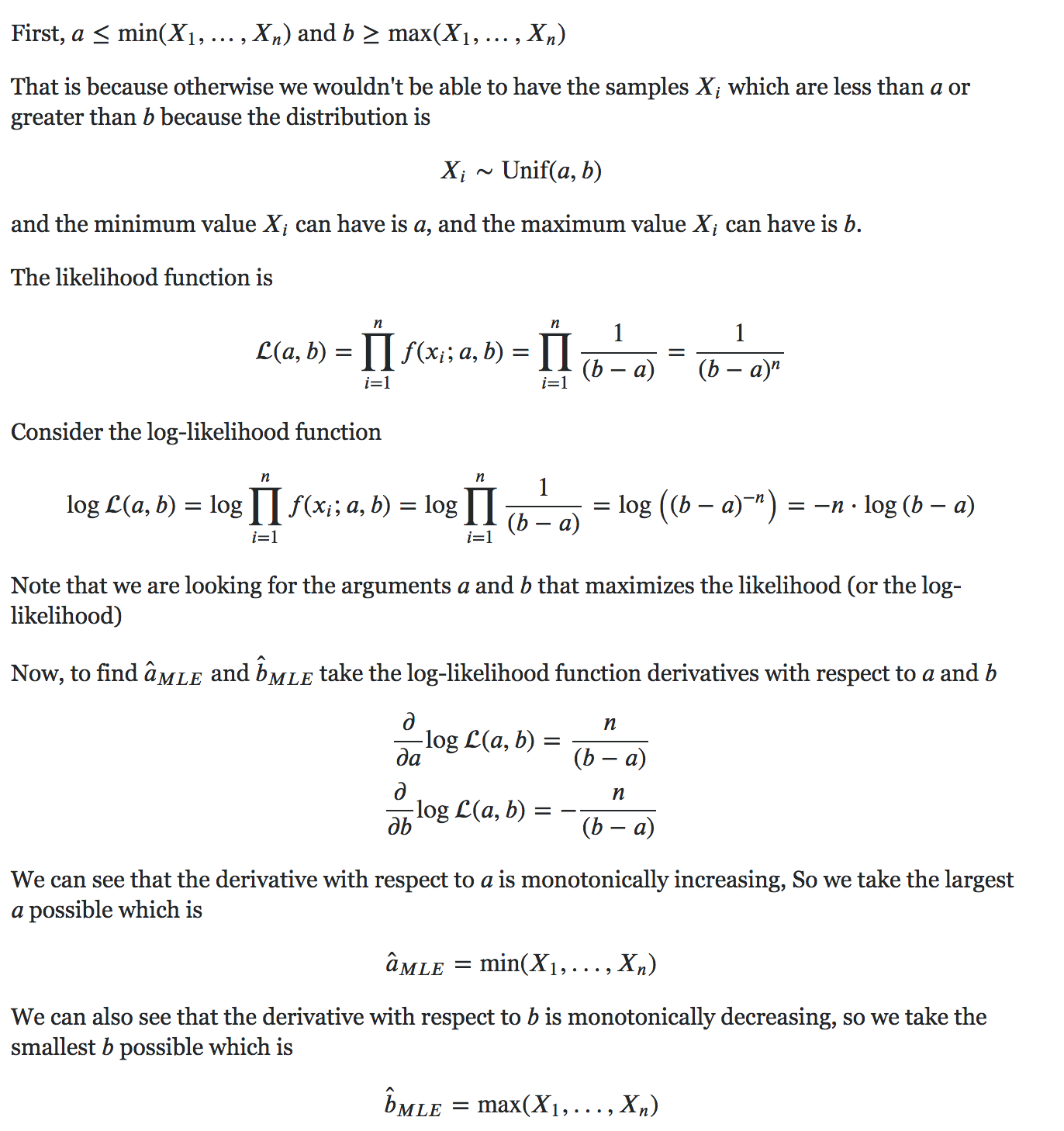
T



To solve:





* 1. Sample mean = 35.98

Sn-1 = 15.24…

t8,0.995 = 3.36

sqrt(n) = 3

Use sample mean -/+ t8,0.995 \* Sn-1 / sqrt(n)

[18.91, 53.05]

* 1. Null Hypothesis:

Bias-corrected pooled sample variance

Test statistic

Rejection region at the 95% level :

We can reject the null hypothesis.



Observed:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **+** | **=** | **-** |
| **Labour** | 137 | 82 | 66 |
| **Conservative** | 63 | 66 | 86 |

Expected:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **+** | **=** | **-** |
| **Labour** | 114 | 84.4 | 86.6 |
| **Conservative** | 86 | 63.6 | 65.4 |

22.38

V = (3-1)(2-1) = 2

X\_2 <= 10.60 for sig level <= 0.5%

We reject null hypothesis at any reasonable sig level <=0.5%.

2)

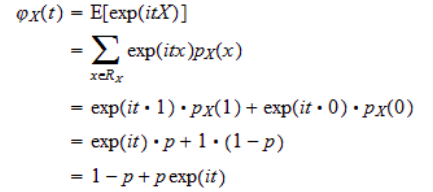
i) mean = 572.8

Std Dev = **20.14**

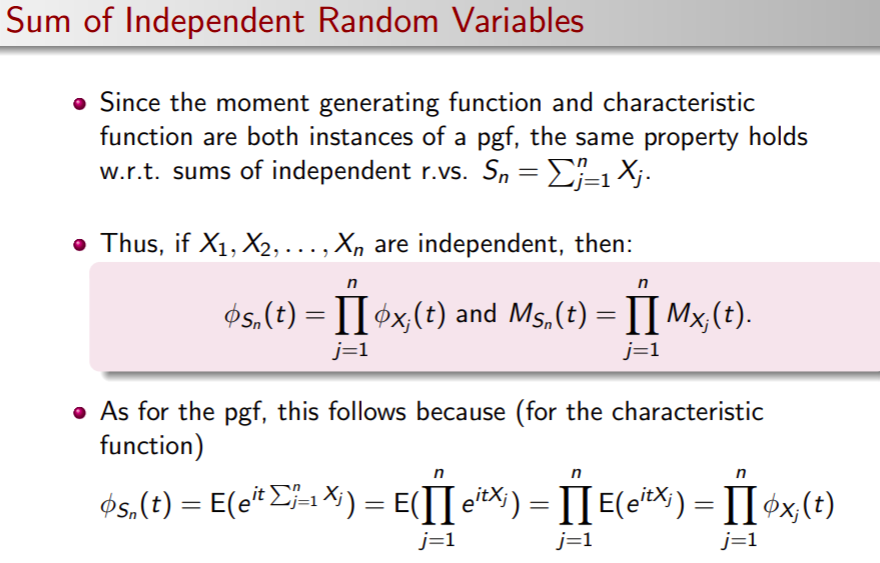
b)

i)

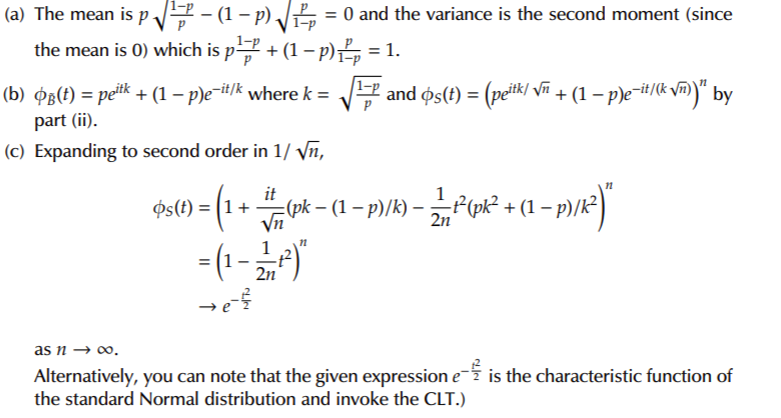
exp(itX) = e^(itX)



ii)

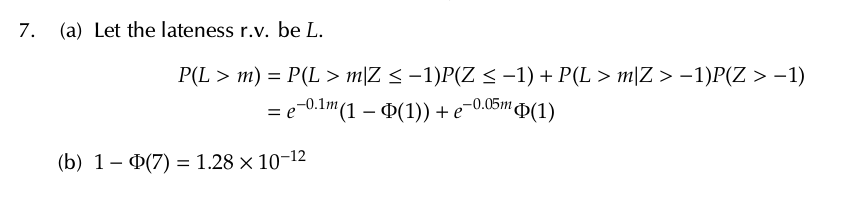


iii-v)



c)

Let’s see if Cunningham’s law holds.

Exercise sheet 4: 

i)

We have Z~N(0,1), X~Exp(1/10), Y~Exp(1/20) since mean of exp is 1/λ=20.

Let A be a RV that says how late the professor is. By the law of total probability we have

Probability of X and Y are given under condition that Z is a specific value, so P(X|Z<-1)=P(X) and same for Y. Therefore the equation is

Now we compute values for P(Z)s and we get

ii)

Probability that train arrives before 7:30 is   
How about the professor?😔