MAT 277E HW-2

Ö. Malik Kalemboşı
150180112

a) $\mu\phi = 53,07$ $\quad \sigma\phi = 42,07$

b) $f(1) = \frac{1}{(42,07)\sqrt{2\pi}} e^{\frac{-(1-53,07)^2}{2(42,07)^2}} = 0,0044$

$f(3) = 0,0046$ $\quad f(4) = 0,0048$

$f(12) = 0,0059$ $\quad f(21) = 0,0071$

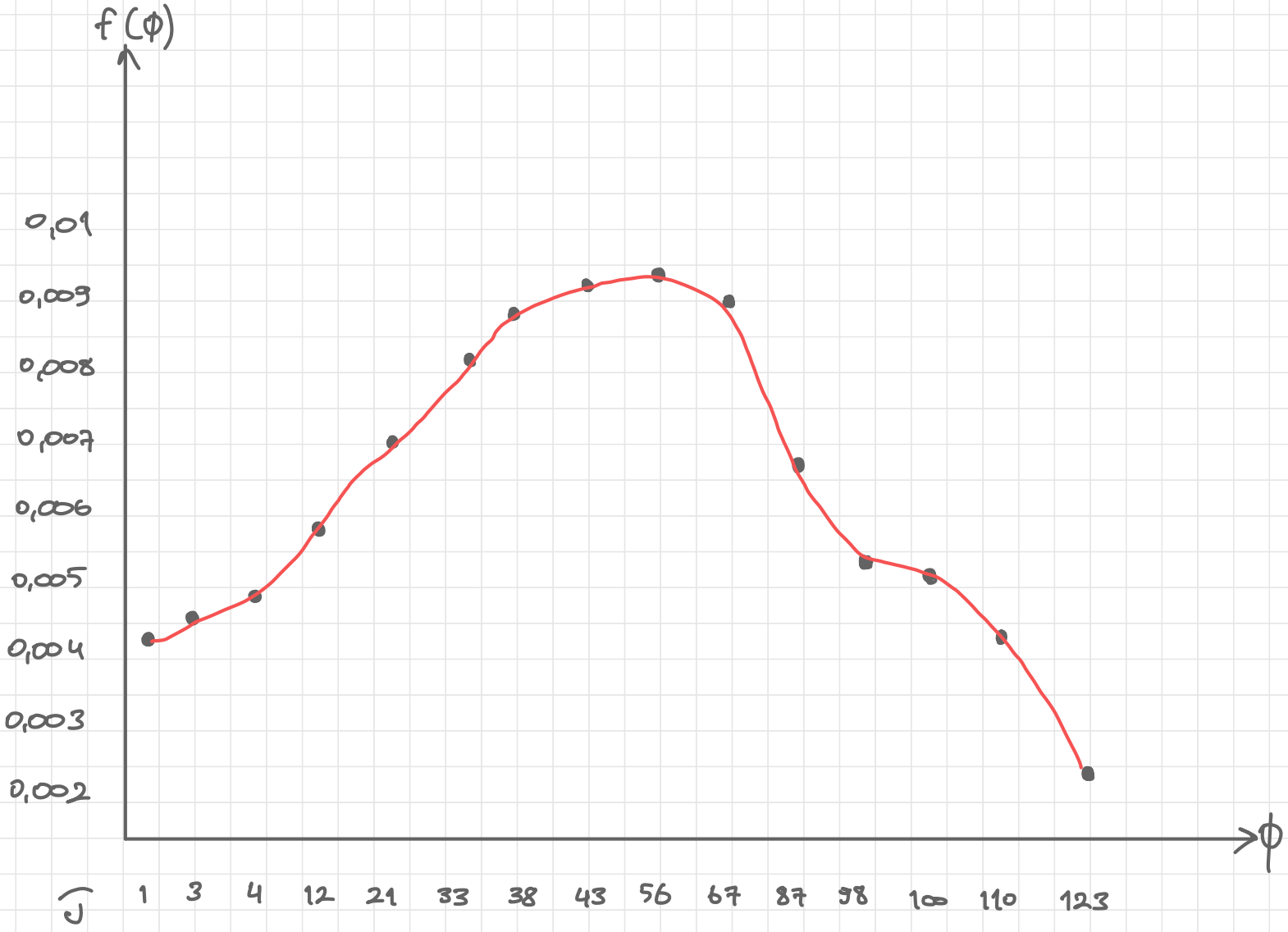
$f(33) = 0,0084$ $\quad f(38) = 0,0089$

$f(43) = 0,0092$ $\quad f(56) = 0,0094$

$f(67) = 0,0090$ $\quad f(87) = 0,0068$

$f(98) = 0,0054$ $\quad f(100) = 0,0051$

$f(110) = 0,0038$ $\quad f(123) = 0,0024$


f(ϕ)
0,01
0,009
0,008
0,007
0,006
0,005
0,004
0,003
0,002
ϕ
j
1
3
4
12
21
33
38
43
56
67
87
98
100
110
123

a) $\mu_{f(\phi)} = 0,006346$

$\sigma_{f(\phi)} = 0,002235$

$z = \left(f(\phi) - \mu_{f(\phi)}\right) / \sigma_{f(\phi)}$

$z(f(1)) = -0,8706$

$z(f(3)) = -0,7812$

$z(f(4)) = -0,6917$

$z(f(12)) = -0,1995$

$z(f(21)) = 0,3373$

$z(f(30)) = 0,9130$

$z(f(38)) = 1,1427$

$z(f(43)) = 1,2769$

$z(f(56)) = 1,3664$

$z(f(67)) = 1,1874$

$z(f(87)) = 0,2031$

$z(f(98)) = -0,4232$

$z(f(100)) = -0,5574$

$z(f(110)) = -1,1391$

$z(f(123)) = -1,7655$

e) According to z - f(t) table

$f(-0,8706) = 0,19215$ $f(-0,7812) = 0,21770$

$f(-0,6917) = 0,24510$ $f(-0,1995) = 0,42465$

$f(0,3373) = 0,64431$ $f(0,9190) = 0,81594$

$f(1,1427) = 0,87286$ $f(1,2769) = 0,89736$

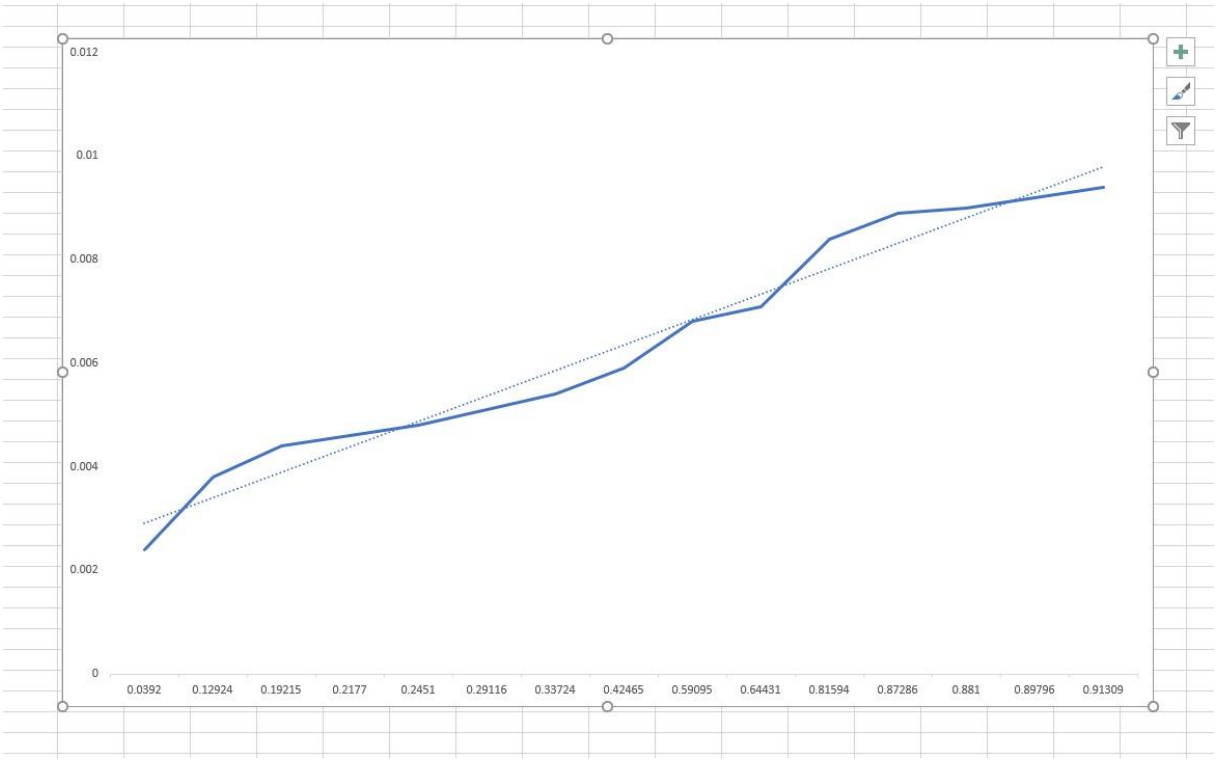
$f(1,3664) = 0,91309$ $f(1,1874) = 0,88100$

$f(0,2031) = 0,59095$ $f(-0,4232) = 0,33724$

$f(-0,5574) = 0,29116$ $f(-1,1391) = 0,12924$

$f(-1,7655) = 0,03920$

f) Probabilities obtained from the table against **f(ϕ)**:



g)

mean = $0{,}0059$

standard deviation = $\sigma = 0{,}0094 - 0{,}006346 = 0{,}003054$

h)

$$Cs_{f(\phi)} = \left[\sum_{i=1}^{15} \left(f(\phi i) - \mu_{f(\phi)}\right)^3 / 15\right] / \left(\sigma_{f(\phi)}\right)^3 = -0.005557202358$$