In[431]:=
```
FindC[start_, end_, seq_] := (
   nn = Length[seq];
   count = 0;
   For[j = 1, j ≤ nn, j++,
    If[seq[[j]] ≥ start && seq[[j]] < end, count++];
    If[seq[[j]] ≥ end, Break[]];
   ];
   Return[count];
  );

x = {3.22, 2.58, 3.03, 2, 2.53, 2.61, 1.87, 4.41, 4.48, 3.10,
   4.99, 1.82, 3.3, 2.93, 1.16, 4.12, 2.1, 2.47, 4.16, 2.14,
   2.89, 1.94, 3.29, 2.98, 3.75, 2.51, 3.17, 4.43, 2.83, 3.56,
   4.36, 1.64, 2.74, 4.13, 5.13, 2.44, 2.51, 3.97, 2.86, 2.96,
   2.99, 2.77, 2.43, 2.24, 4.34, 3.05, 2.53, 2.25, 3.64, 3.45};
x = Sort[x];
Print["sort ", x];
n = Length[x];
Print["n=", n];
Δt = (x[[n]] - x[[1]]) / (1 + Log[2, n]);
Print["Δt  = ", Δt];
(x[[n]] - x[[1]]) / Δt
NN = Ceiling[(x[[n]] - x[[1]]) / Δt];
Print["N=", NN];
x[[n]]
first = Table[{}, {i, NN}, {j, 6}];
For[i = 1, i ≤ NN, i++,
  first[[i, 1]] = i;
  first[[i, 2]] = x[[1]] + (i - 1) * Δt;
  (*first[[i,3]] = x[[1]] + i * Δt;*)
  If[i ≠ NN, first[[i, 3]] = x[[1]] + i * Δt, first[[i, 3]] = x[[n]]];
  first[[i, 4]] = (first[[i, 2]] + first[[i, 3]]) / 2;
  first[[i, 5]] = FindC[first[[i, 2]], first[[i, 3]], x];
  If[i == NN, first[[i, 5]] ++];
  first[[i, 6]] = first[[i, 5]] / n;
 ];
Print[first // MatrixForm];
```

```
sort {1.16, 1.64, 1.82, 1.87, 1.94, 2, 2.1, 2.14, 2.24, 2.25, 2.43, 2.44,
  2.47, 2.51, 2.51, 2.53, 2.53, 2.58, 2.61, 2.74, 2.77, 2.83, 2.86, 2.89,
  2.93, 2.96, 2.98, 2.99, 3.03, 3.05, 3.1, 3.17, 3.22, 3.29, 3.3, 3.45, 3.56,
  3.64, 3.75, 3.97, 4.12, 4.13, 4.16, 4.34, 4.36, 4.41, 4.43, 4.48, 4.99, 5.13}
n=50
Δt  = 0.597545
```

Out[439]= 6.64386

```
N=7
```

Out[442]= 5.13

1	1.16	1.75754	1.45877	2	$\frac{1}{25}$
2	1.75754	2.35509	2.05632	8	$\frac{4}{25}$
3	2.35509	2.95263	2.65386	15	$\frac{3}{10}$
4	2.95263	3.55018	3.25141	11	$\frac{11}{50}$
5	3.55018	4.14772	3.84895	6	$\frac{3}{25}$
6	4.14772	4.74527	4.44649	6	$\frac{3}{25}$
7	4.74527	5.13	4.93763	2	$\frac{1}{25}$

In[446]:=
```
Np = NN - 2;
second = Table[{}, {i, Np}, {j, 6}];
second[[1, 1]] = 1;
second[[1, 2]] = x[[1]] ;
second[[1, 3]] = first[[2, 3]] ;
second[[1, 4]] = (second[[1, 2]] + second[[1, 3]])/2 ;
second[[1, 5]] = first[[1, 5]] + first[[2, 5]] ;
second[[1, 6]] = second[[1, 5]] / n;
For[i = 2, i ≤ Np - 1, i++,
  second[[i, 1]] = i;
  second[[i, 2]] = first[[i + 1, 2]] ;
  second[[i, 3]] = first[[i + 1, 3]] ;
  second[[i, 4]] = first[[i + 1, 4]] ;
  second[[i, 5]] = first[[i + 1, 5]] ;
  second[[i, 6]] = first[[i + 1, 6]] ;
 ];

second[[Np, 1]] = Np;
second[[Np, 2]] = first[[NN - 1, 2]] ;
second[[Np, 3]] = first[[NN, 3]];
second[[Np, 4]] = (second[[Np, 2]] + second[[Np, 3]])/2 ;
second[[Np, 5]] = first[[Np + 1, 5]] + first[[Np + 2, 5]] ;
second[[Np, 6]] = second[[Np, 5]] / n;
Print[second // MatrixForm];
```

1	1.16	2.35509	1.75754	10	$\frac{1}{5}$
2	2.35509	2.95263	2.65386	15	$\frac{3}{10}$
3	2.95263	3.55018	3.25141	11	$\frac{11}{50}$
4	3.55018	4.14772	3.84895	6	$\frac{3}{25}$
5	4.14772	5.13	4.63886	8	$\frac{4}{25}$

In[694]:=
```
a = 0;
a = (∑_{i=1}^{Np} second[[i, 4]] * second[[i, 5]])/n;
Print["a=", a];
```

a=3.06707

In[697]:=
$$d = \frac{\sum_{i=1}^{Np} \left((second[[i, 4]] - a)^2 * second[[i, 5]]\right)}{n};$$

```
Print["d=", d];
```

```
d=0.870314
```

In[467]:=
$$avg = \frac{\sum_{i=1}^{n} x[[i]]}{n};$$

```
Print["avg = ", avg];
```

```
avg = 3.056
```

In[469]:=
$$disp = \frac{\sum_{i=1}^{n} (x[[i]] - avg)^2}{n};$$

```
Print[disp];
```

```
0.797108
```

In[699]:=
```
Clear[result, gist];
gist[t_] := (
   result;
   For[j = 1, j ≤ Np, j++,
    If[t ≥ second[[j, 2]] && t < second[[j, 3]],
      result = second[[j, 6]] / (second[[j, 3]] - second[[j, 2]]);
       Return[result]];
   ];
   If[t == second[[Np, 3]], result = second[[Np, 6]]];
   Return[result];
  );
```

In[701]:=
```
list = {};
For[i = 1, i ≤ Np , i++,
  AppendTo[list,
    {second[[i, 4]], second[[i, 6]] / (second[[i, 3]] - second[[i, 2]])}];
 ];
```

In[703]:=
$$Show\left[Plot\left[\left\{\frac{1}{Sqrt[2\,\pi\,d]}\,e^{-\frac{(t-a)^2}{2\,d}},\ gist[t]\right\},\ \{t, 1.16, 5.13\}\right], ListLinePlot[list]\right]$$

Out[703]=