

# Binomialverteilung, Histogramm

Prof. Dr. Dörte Haftendorn 9.5.08 MuPAD 4 Update vom 10. Mai 08

<http://haftendorn.uni-lueneburg.de>

[www.mathematik-verstehen.de](http://www.mathematik-verstehen.de)

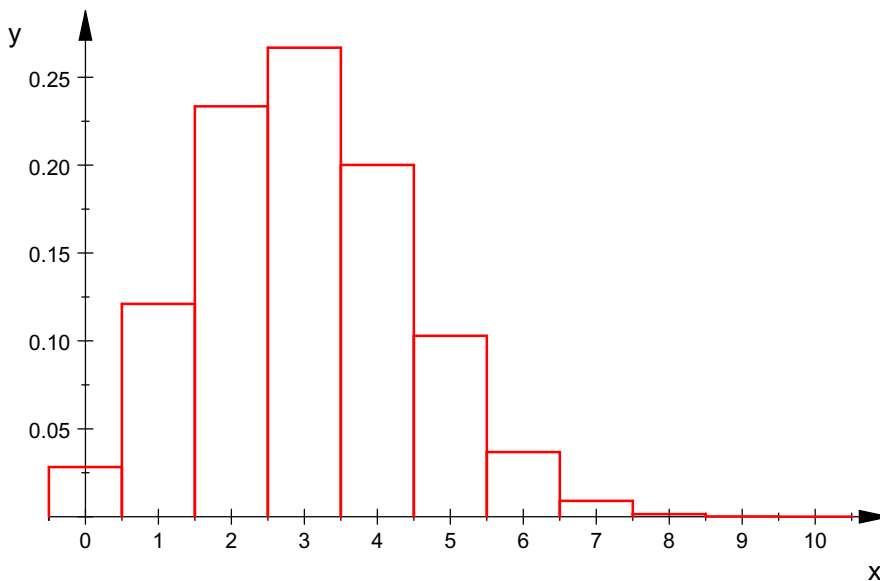
+++++

Definition, die ein Histogramm passend zeichnet .

Für  $w=1$  werden alle Werte ausgegeben, für  $w=0$  nur  $my$  und  $sigma$

```
biHist:=proc(n,p,kmin,kmax,w)
  //w=1 alle Werte, w=0 nur my, sigma
  local i,bipf,kmi,kma,li;
  begin
    bipf:=stats::binomialPF(n,p):
    kmi:=round(kmin): kma:=round(kmax):
    i:=kmi:li:=[]:
    werte:=[i,bipf(i)] $ i=kmi..kma;
    for i from kmi to kma do
      li:=li.[[i-0.5,0],[i-0.5,bipf(i)],
[i+0.5,bipf(i)],[i+0.5,0]];
    end_for;
    hist:=plot::Polygon2d(li,LineColor=[1,0,0]);
    plot(hist);
    if w=1 then
      return(matrix(float([werte])));
    else return(float(["my",n*p]),
      float(["sigma",sqrt(n*p*(1-p))]))
    end_if;
  end_proc;
```

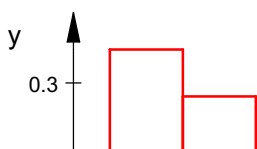
```
biHist(10,0.3,0,10,0)
```

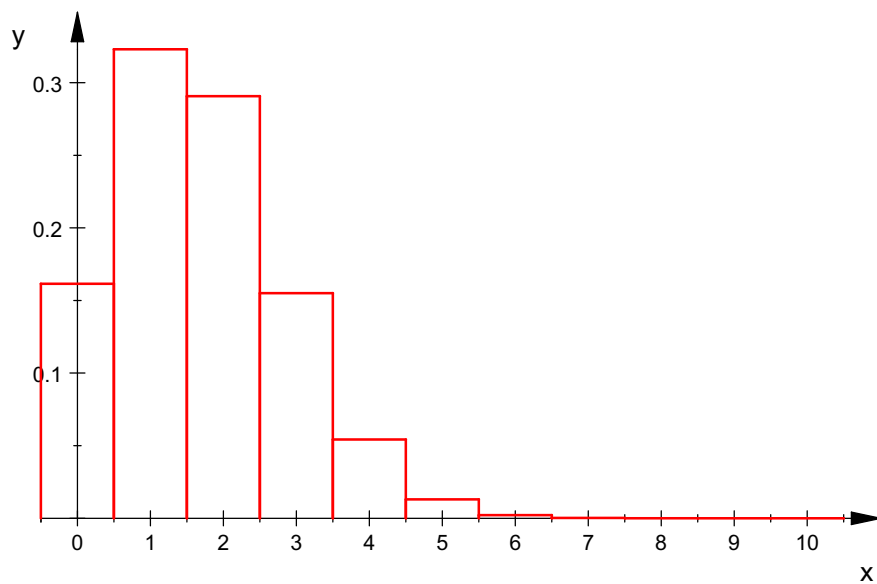


```
["my", 3.0], ["sigma", 1.449137675]
```

1

```
biHist(10,1/6,0,10,1)
```





0	0.1615055829
1.0	0.3230111658
2.0	0.2907100492
3.0	0.1550453596
4.0	0.05426587585
5.0	0.0130238102
6.0	0.002170635034
7.0	0.0002480725753
8.0	0.00001860544315
9.0	0.0000008269085844
10.0	0.00000001653817169

```
nn:=300: pp:=0.3; my:=nn*pp;sig:=sqrt(nn*pp*(1-pp));
xmin:=my-4*sig;xmax:=my+4*sig;
```

0.3

90.0

7.937253933

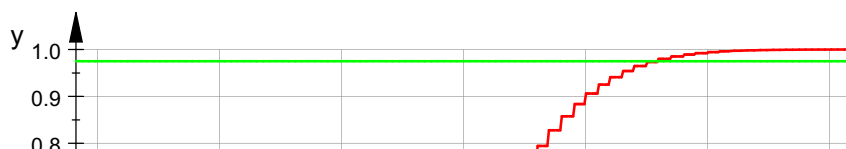
58.25098427

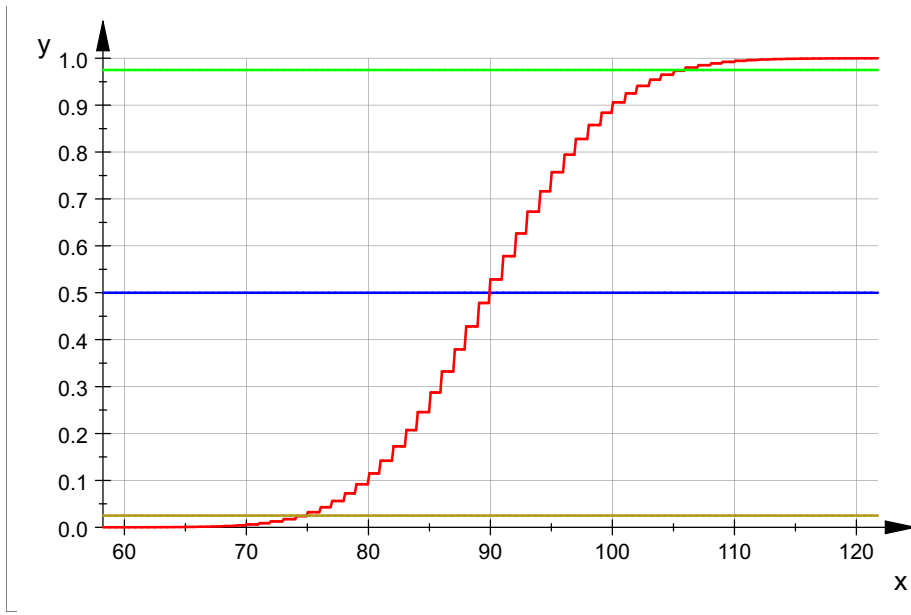
121.7490157

```
biHist(nn,pp,xmin,xmax,0)
```

```
bicdf:=stats::binomialCDF(nn,pp):
```

```
plotfunc2d(0.5,bicdf(x),0.975,0.025,x=xmin..xmax,
  LegendVisible=FALSE, GridVisible=TRUE)
```





Erkunde dies mit dem Koordinatenwerkzeug