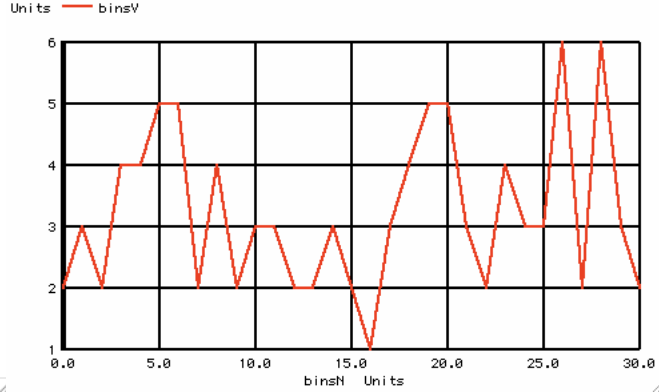
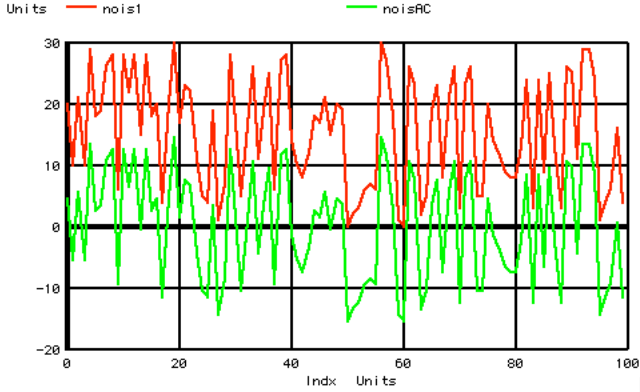


Histogram_1_RND(31)

A HISTOGRAM CAN SHOW SOME IMPORTANT DETAILS ABOUT THE RND() FUNCTION.



```

=====Want_100_time_steps=====
random levels      0-> 31
Numb rnd waveforms 1
=====Build Arrays=====
Number Bins       0-> 31
=====Build_Noise_Signal=====
plot              nois1 vs Indx
=====Histogram_Data=====
plot              binsV vs binsN
=====Find_Ave_Rms=====
Average level     15.44
RMS level         9.05243
Average expected  15.5
RMS expected      8.94893
=====Done=====

```

Histogram_1_RND(31)

```

V1 1 0 0 dc
.control
set pensize = 2
echo "=====Want_100_time_steps=====
let n = 100
let Nlev = 31
let Nrnd = 1
let Nbins = Nlev*Nrnd
echo "random levels 0-> $&Nlev"
echo "Numb rnd waveforms $&Nrnd"
echo "=====Build Arrays=====
unlet binsV
unlet binsN
unlet Indx
unlet nois1
let binsV = vector($&Nbins)*0
let binsN = vector($&Nbins)
let Indx = vector(n)
let nois1 = vector(n)
echo "Number Bins 0-> $&Nbins"
echo "=====Build_Noise_Signal=====
let index = 0
repeat $&n
let nois1[index] = rnd($&Nlev)
let index = index + 1
end
plot nois1 vs Indx
echo "plot nois1 vs Indx"
echo "=====Histogram_Data=====
let index = 0
let hist = 0
repeat $&n
let indexb = 0
repeat $&Nbins
let hist = nois1[index]
*echo $&hist $&indexb
if (hist < indexb +.1 & hist > indexb -.1)
let binsV[indexb] = binsV[indexb] + 1
endif
let indexb = indexb + 1
end
let index = index + 1
end
plot binsV vs binsN
echo "plot binsV vs binsN"
echo "=====Find_Ave_Rms=====
let mathAve = (Nlev)/2
let mathRMS = mathAve/sqrt(3)
let averVal = mean(nois1)
let noisAC = nois1 - averVal
plot nois1 noisAC vs Indx
let RmsVal = sqrt(mean(noisAC* noisAC))
echo "Average level $&averVal"
echo "RMS level $&RmsVal"
echo "Average expected $&mathAve"
echo "RMS expected $&mathRMS"
echo "=====Done=====

```

.endc
.end