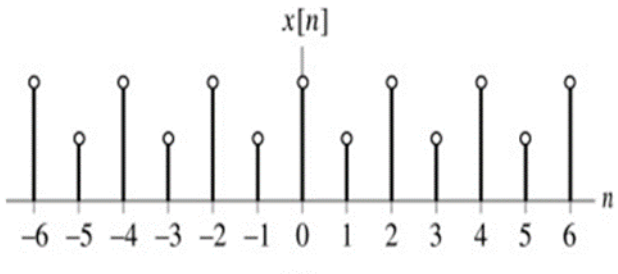
Experiment: Time Scaling

A discrete time signal x(n) is shown in figure.



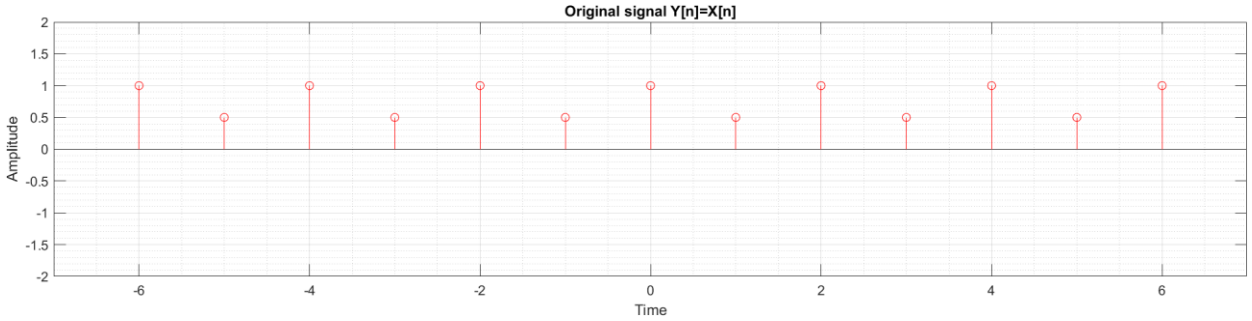
Sketch the signal x[n], the sketch y[n]=x[n/2].

Solution:-

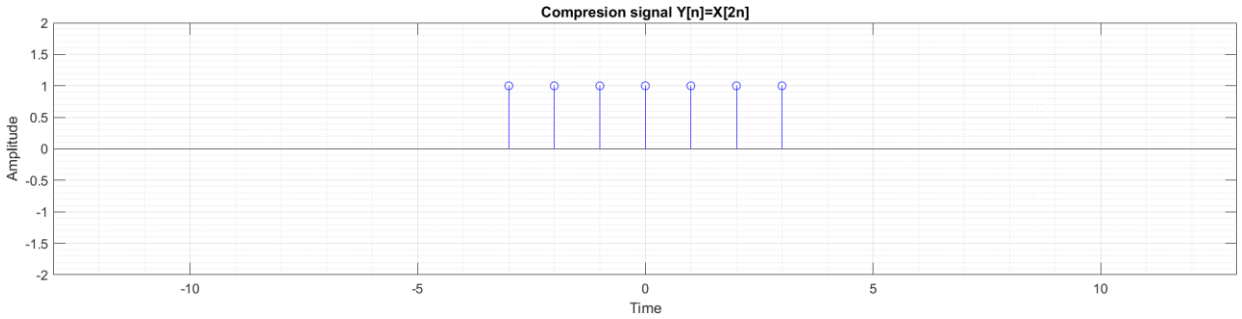
```
close all;
clear all;
clc;

start_value = input('Enter the start value: ');%-6
end_value = input('Enter the end value: ');%6

n1 = start_value:end_value;

y=input("Enter the values of signal = "); %[1 0.5 1 0.5 1 0.5 1 0.5 1 0.5 1 0.5 1]

index=1;

for i=1:length(n1)
   if(rem(n1(i),2)==0)
      x1(index)=n1(i)/2;
      y1(index)=y(i);
      index=index+1;
   end
end

subplot(2,1,1);
stem(n1,y,'r');
xlabel("Time");
ylabel("Amplitude");
grid on;
grid minor;
```

```
axis([(start_value-1) (end_value+1) -(max(y)+1) (max(y)+1)]);
title("Original signal Y[n]=X[n]");

subplot(2,1,2);
stem(x1,y1,'b');
xlabel("Time");
ylabel("Amplitude");
grid on;
grid minor;
axis([(2*start_value-1) (2*end_value+1) -(max(y1)+1) (max(y1)+1)]);
title("Compresion signal Y[n]=X[2n]");
```

Original signal Y[n]=X[n]:-



Compresion signal Y[n]=X[2n]:-



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