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Random-Walk Experiment

1. Conclusion about relationship between d, n and l

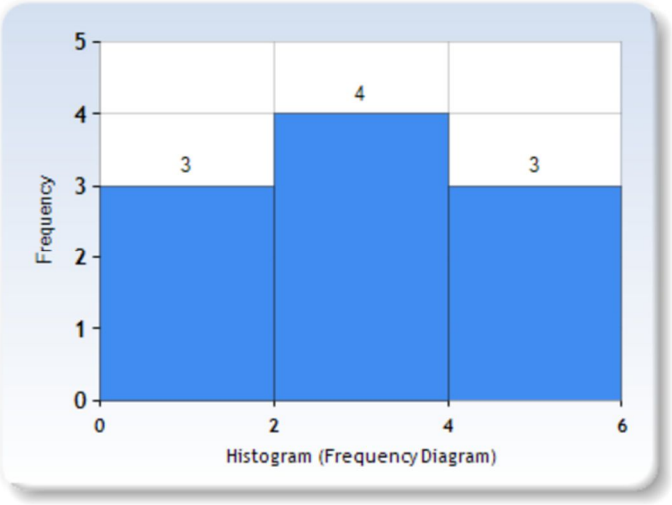
   The drunken man walks distance of 'd', with number of steps 'n' and with uniform steps 'l'. He can walk in any direction, i.e., North, south, east or west. Relation that is analyzed give us the following relationship.

   d<= sqrt(n)*l
   now, according to the question, l is constant as the length of each step is equal. So, that means d is directly proportionate to the square root of n.
   Here is one notable thing that when the number of steps(n) are even the value of 'd' is minimum, when the number of steps(n) are odd, the value of 'd' is less than zero and for all other values of number of steps, the value of 'd' is greater than or equal to 'n'.

2. Evidence to support the relationship

Frequency Table	
Class	*Count*
0-1.999999	3
2-3.999999	4
4-5.999999	3

Your Histogram	
Mean	2.52132
Standard Deviation (s)	1.43098
Lowest Score	0
Highest Score	4.242641
Distribution Range	4.24264
Total Number of Scores	10
Number of Distinct Scores	5
Lowest Class Value	0
Highest Class Value	5.999999
Number of Classes	3
Class Range	2



Above histogram shows the pattern that is analyzed above. The graph is generated by taking 10 values of 'n' where n=10. Average of the distance that is being covered is calculated which has been shown in the graph. The graph clearly shows how distance is directly proportionate to the sqrt of 'n'.