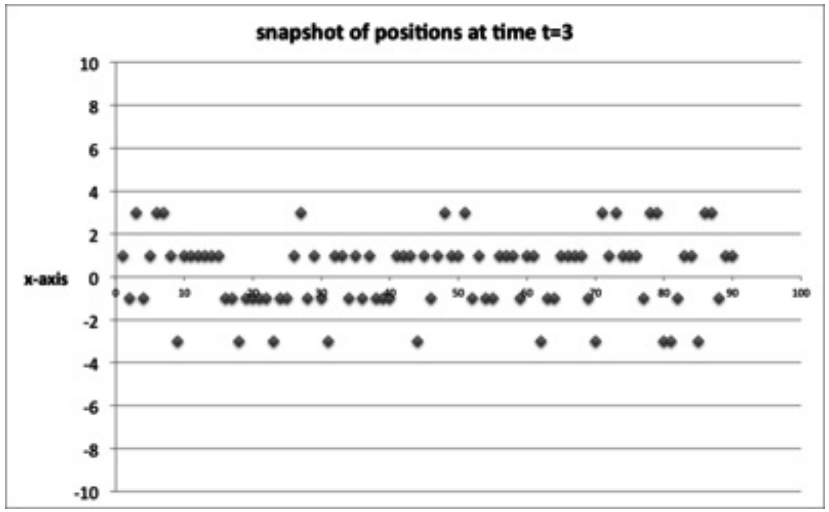
1.

This is a snapshot at time t=3 (after three steps) of the random walk we have just done. The little diamonds are like your heads seeing from the top of Becton plaza.Draw on the plot two horizontal lines that identify a width 2σ around the mean value.(Remember you can think at 2σ as the width that encloses 75% of the total walkers).



2.

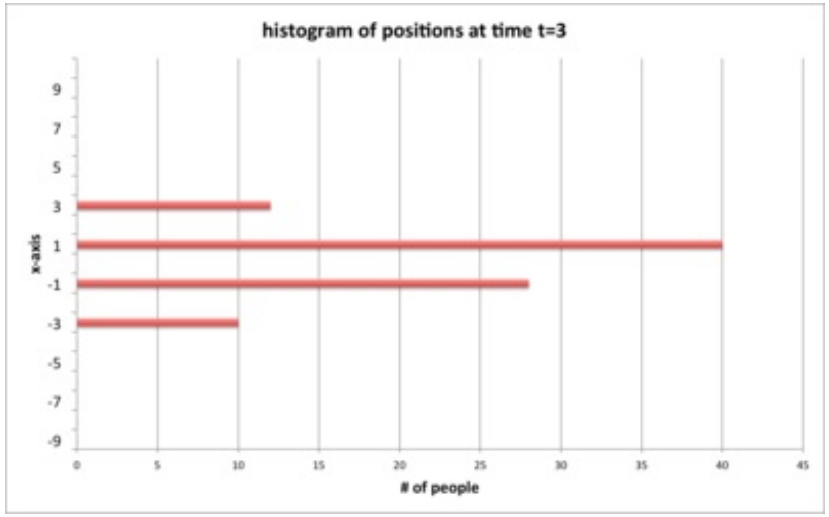
From this estimate, what is your guess for the σ of the distribution of walkers at time $t = 3$? (write a numerical value in unit of steps)

3.

What do you think was the average position at this time $t = 3$?

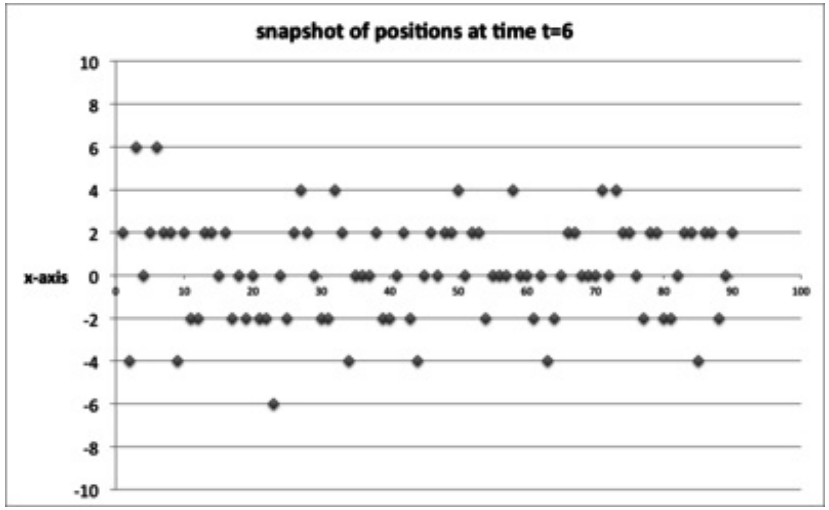
4.

Draw on the corresponding histogram for the positions at time $t = 3$, the same two horizontal lines that identify the width 2σ.



5.

This is a snapshot at time t=6 (after six steps) of the random walk we have just done. The little diamonds are like your heads seeing from the top of Becton plaza.Draw on the plot two horizontal lines that identify a width 2σ around the mean value.(Remember you can think at 2σ as the width that encloses 75% of the total walkers).



6.

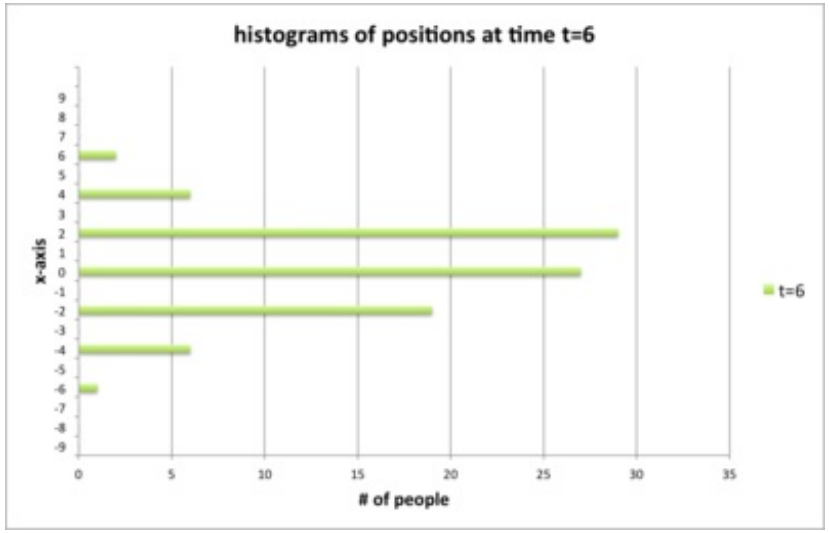
From this estimate, what is your guess for the σ of the distribution of walkers at time t=6? (write a numerical value in unit of steps)

7.

What do you think was the average position at this time t=6?

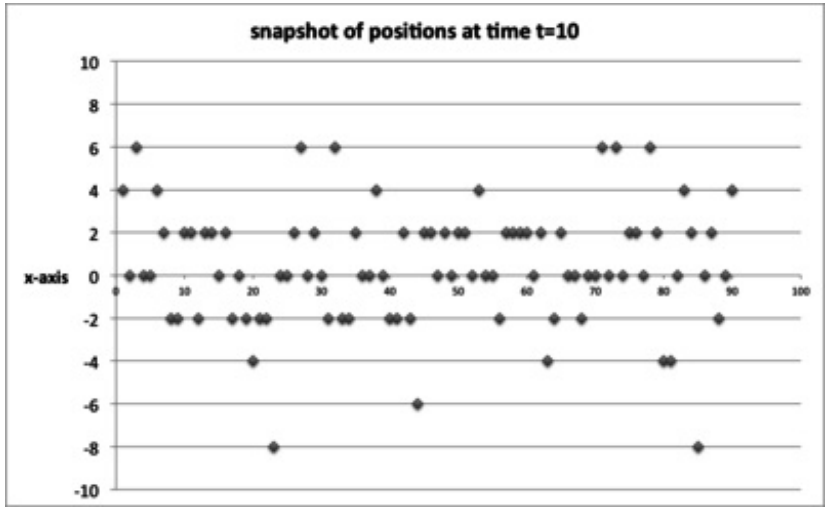
8.

Draw on the corresponding histogram for the positions at time t=6, the same two horizontal lines that identify the width 2σ.



9.

This is a snapshot at the final time t=10 of the random walk we have just done. The little diamonds are like your heads seeing from the top of Becton plaza.Draw on the plot two horizontal lines that identify a width 2σ around the mean value.(Remember you can think at 2σ as the width that encloses 75% of the total walkers).



10.

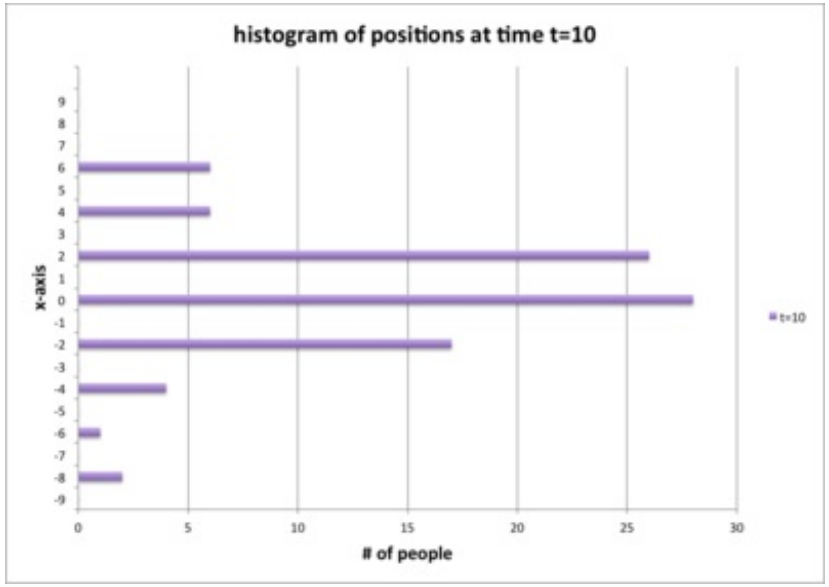
From this estimate, what is your guess for the σ of the distribution of walkers at time t=10? (write a numerical value in unit of steps)

11.

What do you think was the average position at the final time t=10?

12.

Draw on the corresponding histogram for the positions at time t=10, the same two horizontal lines that identify the width 2σ.



13.

Roughly, what is the percentage of people that lies between the two lines on the histogram?

14.

If your guess for the 2σ width is reasonable (i.e. the two horizontal lines that you drew are approximately at the right positions), in the histogram you should see that the bars that are within 2σ count for about 75% of the total # of people. Does this make sense? Was this exercise useful to understand what is the standard deviation σ of a distribution, and why it can be considered as the width of the distribution?

A. Yes

B. No