



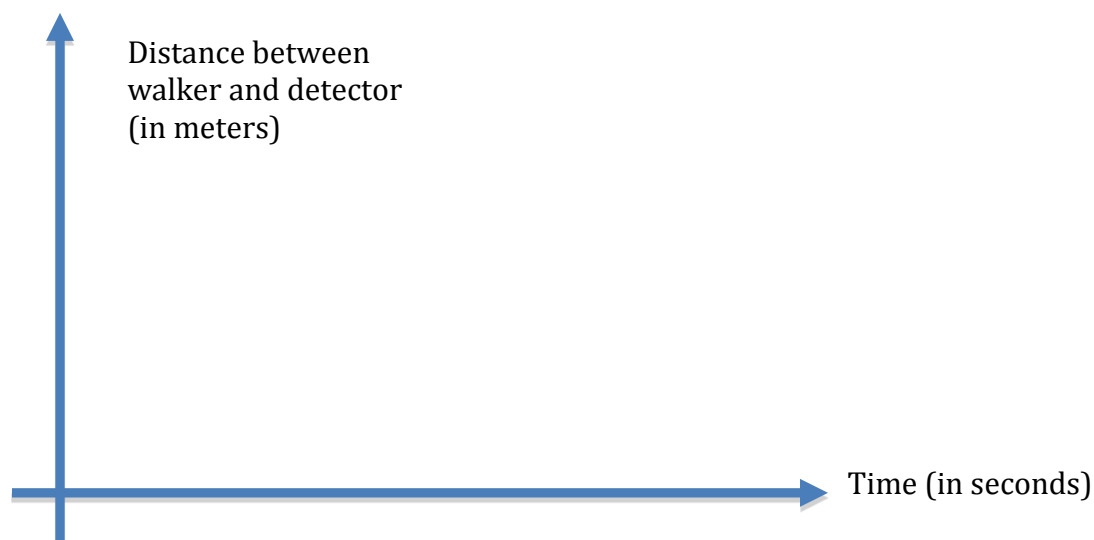
Walking Away

Your instructor will use a CBR 2 motion detector to gather distance vs. time data while one of your classmates walks away from the detector at a constant speed.

The detector will pick up the distance between the walker and itself as time goes by.

While this happens, a graph of this vs. time will appear on the calculator screen for the whole class to see.

1. Sketch your prediction of what the graph will look like in the space below:



2. Record the data your instructor collected in the chart below:

Time (in seconds)	Distance between walker and detector (in meters)
0	
1	
2	
3	
4	



3. Consider the first (distance, time) pair in your chart. What does it physically mean in terms of the walker?
4. On average, how fast was the walker walking during the experiment? Show your work and explain your reasoning in words.
5. Fill out the chart below, assuming the walker started in the same location as in 2) and that they walked at the speed you came up with in 4).

For times 1, 2, 3, and 4: SHOW YOUR WORK!! That means, write a number expression that shows how you came up with the number you are writing in the blank.

Time (in seconds)	Distance between walker and detector (in meters)
0	
1	
2	
3	
4	

6. Suppose the walker kept walking at a constant speed for 10 seconds. How far from the detector would they be at the end of 10 seconds? Show your work and explain your reasoning in words.



7. Explain how you would calculate how far from the detector the walker would be, if they kept walking for 100 seconds at a constant speed.

8. Write an expression for how far the walker would be from the detector if they kept walking for t seconds at a constant speed.

9. Explain what each term in your expression means in terms of the walker.

10. Set your expression in (8) equal to 10. What does the resulting equation mean in terms of the walker?

11. Suppose another student in the class started at the same location as the walker in 2), but walked away at a faster constant rate. What would their graph look like compared to the walker in 2)?

