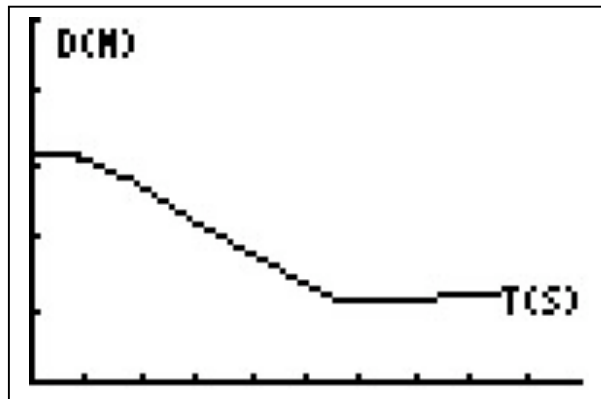


TASK 1.2.5: THE ABCS OF WALKING!**Solutions**

1. Plan how you would walk the letter V . Using your motion detector, walk your plan to make the letter V . When you have a good graph of the letter V , record a description of your final plan and give an explanation of why the other tries failed. *To walk the letter V , start away from the motion detector and walk toward the motion detector at a constant rate. About half way through the allowed time, start moving in a direction away from the motion detector at a constant rate.*
2. Try walking in front of your motion detector and create a graph of the letter W . When you have a good graph of the letter W , describe how you walked to create the letter W . Your description should identify the domain, range, and rate. *Follow the steps in #1 twice. The amount of time you have to do this is the same as for the V so you will need to move twice as quickly. The domain will be in seconds. For REALTIME=YES, TIME is always 15 seconds, the range may be in meters or feet – the distance where the CBR is most effective is 0.5 to 6 meters (1.5 to 19 feet).*
3. Use the space below to write instructions to use the motion detector to create the letter M . Give the directions to a member of your group. Did your directions lead to a graph of the letter M ? Explain how you created your directions. Your description should include the terms domain, range, and rate. *Start close to the motion detector and walk away at a fast rate of speed, turn and walk toward the detector, repeat. The domain will be in seconds. For REALTIME=YES, TIME is always 15 seconds, the range may be in meters or feet – the distance the CBR is most effective at is 0.5 to 6 meters (1.5 to 19 feet).*
4. Try walking the letter B . Could you create the graph of B using the motion detector? Justify your answer. *The letter B cannot be made with a motion detector. It is not a function – you can't be in two places at one time.*
5. Which letters of the alphabet can you walk and graph with the motion detector? Which letters of the alphabet can't you walk and graph with the motion detector? Explain. *Capital letters you can walk on the detector – $M, N, V, W,$ and Z . The other letters when graphed are not functions.*

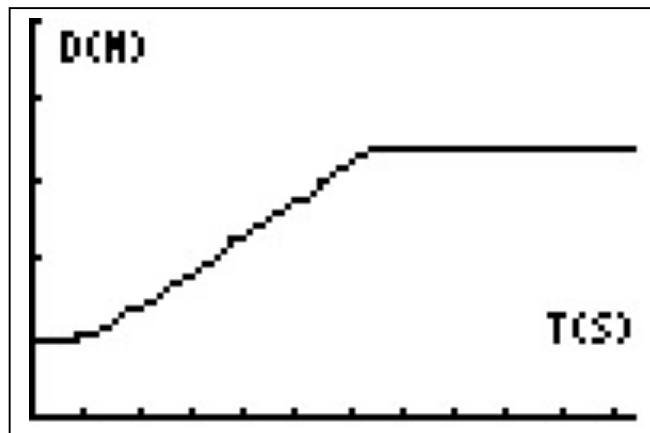
Algebra I: Strand 1. Foundations of Functions; Topic 2. Independent and Dependent; Task 1.2.5

6. Study the following graph. Write a story about the graph and include units, range, and domain.



Start 3 meters away and stand still for one second, start walking toward the detector at a constant rate for about 4.5 seconds; pause there for 1.5 seconds; take one step away from the motion detector and pause for 1 second. The range is approximately 1 to 3 meters; the domain is 0 to 9 seconds.

7. Study the following graph. Describe the walk that created the graph, include units, range, and domain.



Start about 1 meter away from the motion detector and stand still for 1 second; walk away from the detector at a steady rate of about 1.3 meters per second for 5 seconds; stand still for 5 seconds. The domain is 0 to 11 seconds. The range is 1 to 3.5 meters.

Algebra I: Strand 1. Foundations of Functions; Topic 2. Independent and Dependent; Task 1.2.5

Teaching notes

Participants will need time to discover how the motion detector works.

Questions:

- Distance is measured in what units by the motion detector?
- Time is measured in what units?
- What is the domain for the walking?
- What is the range?

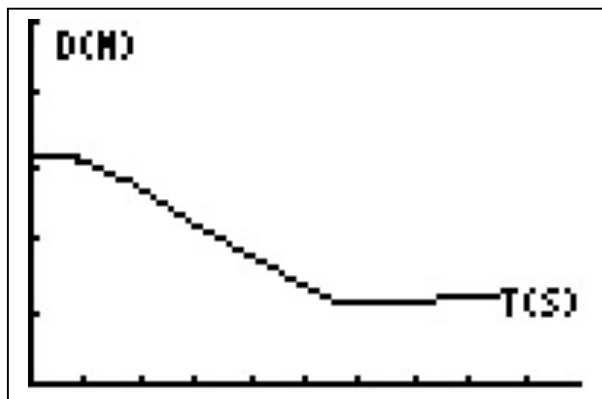
Give participants some time practicing the use of the motion detector. Experiment with walking at a constant rate toward the motion detector, away from the motion detector, and making curves.

TASK 1.2.5: THE ABCS OF WALKING!

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Algebra I: Strand 1. Foundations of Functions; Topic 2. Independent and Dependent; Task 1.2.5

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