

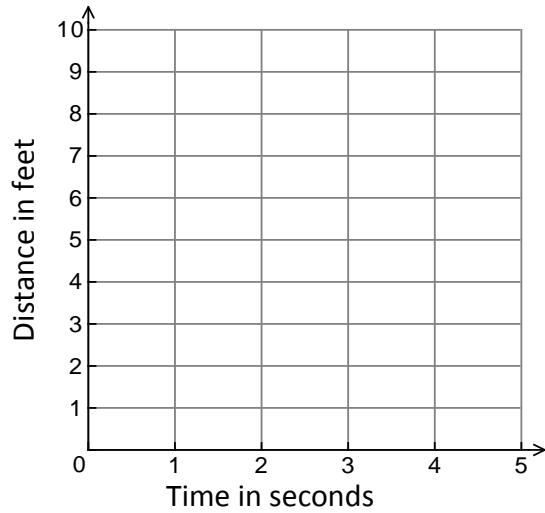
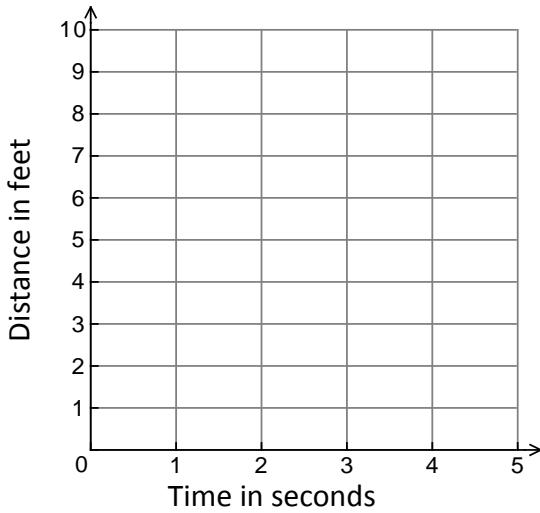
**4.1.2 Motion Detector Group Activity**

Group Members names: \_\_\_\_\_

1. Draw an accurate graph for each situation by hand first. Then:
2. Hold the CBR motion detector in one hand, and your graphing calculator in the other. Aim the sensor directly at a wall. (Hint: The minimum distance it can detect is 6 in., the maximum is 20 ft.)
3. Press the purple “APPS” key. Run the “EasyData” application.
4. From the Setup menu choose 1: Distance, and go to the units tab. Select Feet ( ft ).
5. How did you do? Did you start too close/ not far enough? Walk too fast/ too slow?

a) Tony started 3 feet from the CBR. He walked away from the detector at a rate of 3 feet per second.

b) Marie started 9 feet from the CBR she walked toward it at a rate of 3 feet per second.



How did you do?

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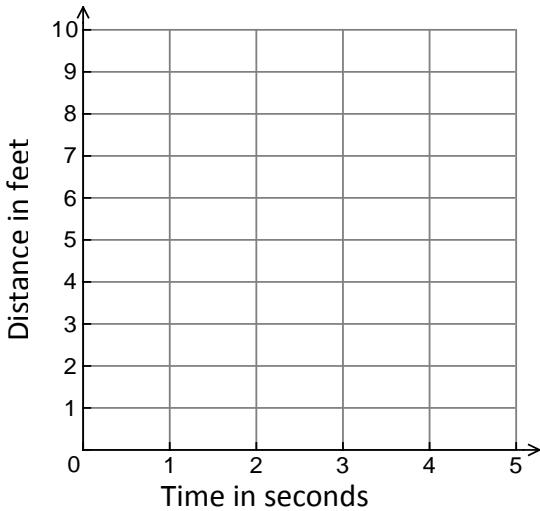
How did you do?

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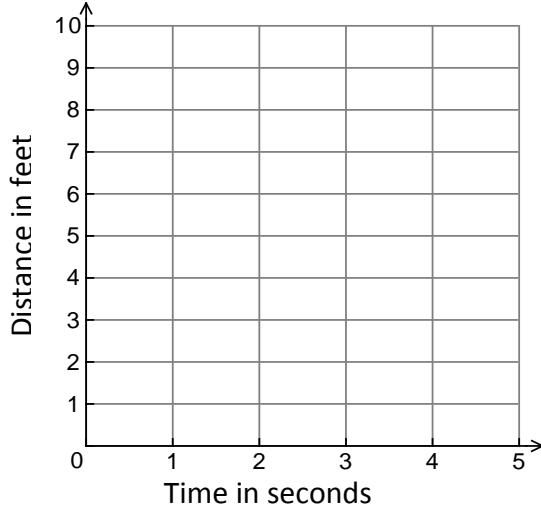
- c) Billy started 10 feet from the CBR. He walked toward from the detector at a rate of 2 feet per second.



How did you do?

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- d) Julie started 5 feet from the CBR she walked toward it at a rate of 1 foot per second.



How did you do?

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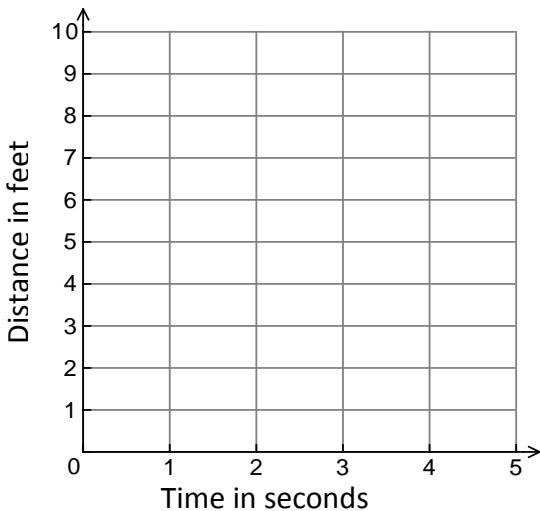
Compare graphs b, c, and d. In which one was the student walking the **fastest**? \_\_\_\_\_

How does the graph tell you this? \_\_\_\_\_

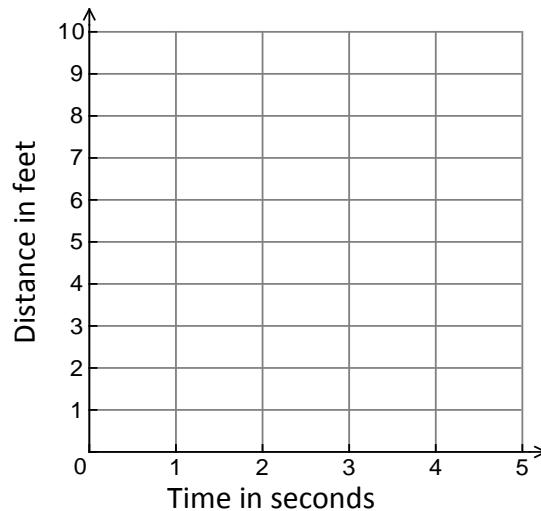
In which graph did the student reach the detector first? \_\_\_\_\_

How did you know? \_\_\_\_\_

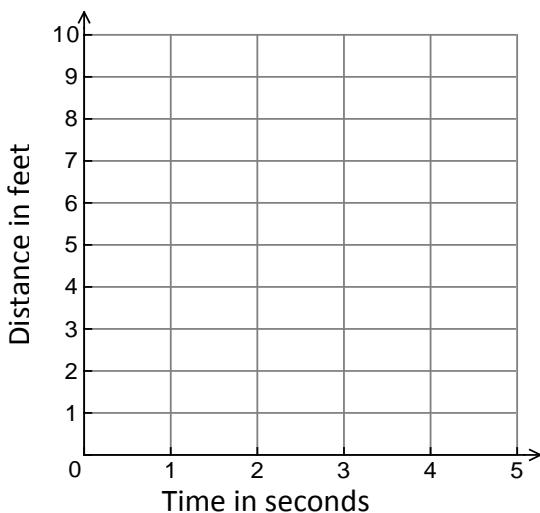
- e) Pam started 7 feet from the detector. She stood still for 2 seconds, then walked toward the detector at 2 feet per second.



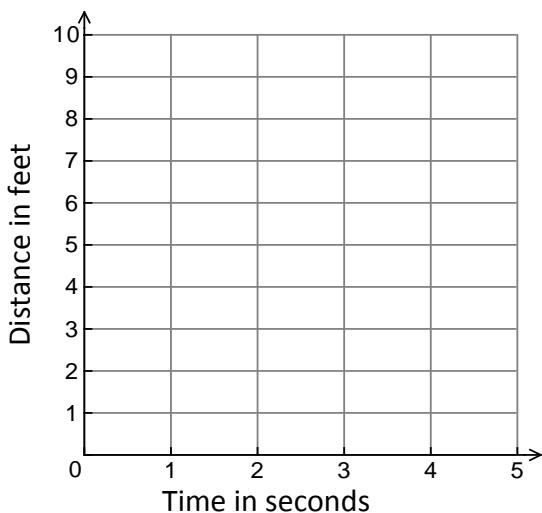
- f) Margaux started at the CBR. She walked away at a rate of 4 feet per second for 2 seconds, then stood still.



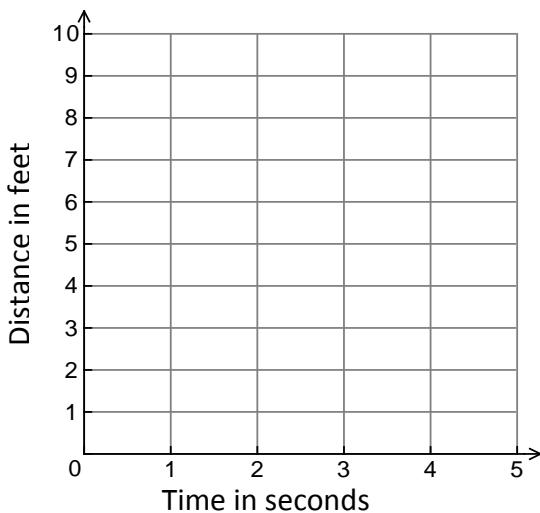
- g) Bobby started 10 feet from the CBR. He walked toward it at a rate of 3 feet per second for three seconds, then walked away from it at 3 feet per second.



- h) Darnell started at the motion detector. He walked away at 1 foot per second for 3 seconds, then walked away at 3 feet per second.



- i) Sara started 10 feet from the CBR. She walked toward the detector for 2 seconds at two feet per second, stopped for one second, then walked away at 3 feet per second.



- j) Johnny sat 5 feet in front of the detector and rocked slightly back and forth.

