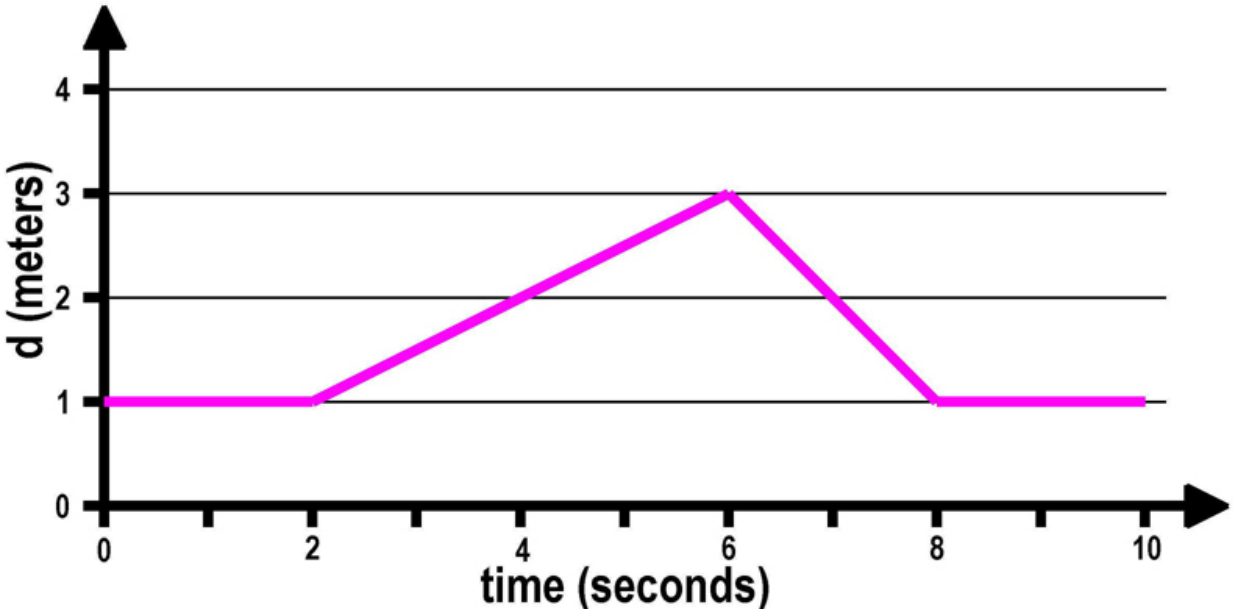
Question #344

This is a follow-up to Question #342 and Question #343.

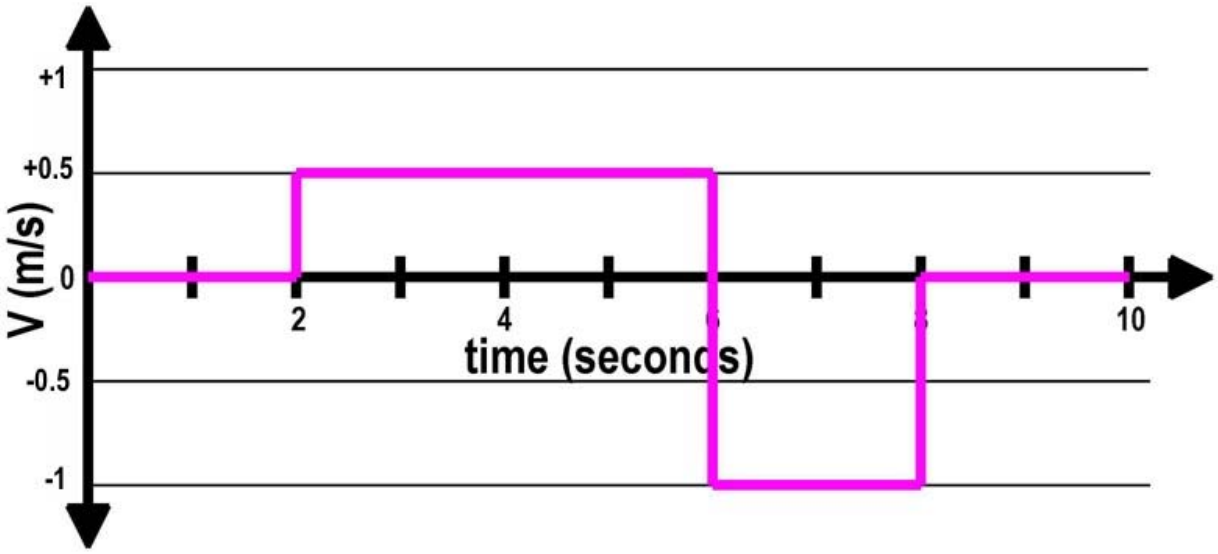
Shown in the photograph below is the Vernier ultrasonic motion detector system with software connected to a computer seen in the right side of the photograph. The ultrasonic range finder measures the time taken for a short burst of ultrasound emitted by the source to reflect off the styrofoam block which I am holding and return to the source, which also acts as a detector. That time is converted into a distance an plotted by the motion detector software. The *velocity vs. time* graph is obtained from the measured *distance vs. time* data.

Shown below are more complex graphs of (a) d(t) and (b) v(t) versus t, where t is the time in seconds, d(t) is the position, and v(t) is the velocity.

(a)



(b)



Identify from among the following motion videos:

- Video #1
- Video #2
- Video #3
- Video #4

the correlations of the videos with the two graphs above.

The correlations are:

- (a) Video #1, 2, 3, 4.
- (b) Video #1, 2, 3, 4.

Click here for Answer #344 after April 20, 2009.

Question of the Week

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For questions and comments regarding the *Question of the Week* contact
Dr. Richard E. Berg by e-mail or using phone number or regular mail address
given on the Lecture-Demonstration Home Page.