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| ESK 2 Motion Graphs  |
| 1. On a position-time grap, sketch a plot representing the motion of an object which is doing the following motions. Label each line with the corresponding letter (e.g., "1", "2", "3", etc.)
2. at rest.
3. moving in the positive direction with constant speed
4. moving in the positive direction and speeding up
5. moving in the positive direction and slowing down
6. moving in the positive direction at a constant speed (slow) and then later fast at constant speed
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| 1. Consider the position vs. time plots below. Sketch the shape of the corresponding velocity vs. time graphs. The circle on the first graph represents the point (2 seconds, 3 meters) Find the speed of that first line segment.

*time**position**time**position**time**velocity**time**velocity* |
| 1. Draw a position vs. time graph of a person walking at a constant speed of 1 m/s for 3 seconds. The stopped for 3 seconds. Then walking at a constant speed of 2 m/s for 5 more seconds. How far did they walk?
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| 1. You drop a ball from the edge of a cliff. It free falls (accelerates at 9.8 m/s2) and lands 4 seconds later.
	1. Make a table showing the ball’s speed each second for 4 seconds.

Make a position graph for the ball for 6 seconds. Explain the shape and what is happening during each second.  |
| 1. Draw the position vs. time graph for a person walking at a constant speed of 1 m/sec for 10 seconds. On the same axes, draw the graph for a person running at a constant speed of 4 m/sec.  Draw a velocity vs. time graph for each person and explain the differences and similarities.
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| 1. Consider the velocity-time plots below. Sketch the shape of the corresponding position-time graphs.

http://www.physicsclassroom.com/getattachment/reviews/1Dkin/1Dkinprint/q34.gif**3.**  |
| 1. For the plots below, determine the velocity of the object:

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| 1. from 0.0 - 5.0 seconds
2. from 5.0-10 seconds
 | c. from 5.0 - 10.0 seconds | d. at 13.0 seconds |
|   **http://www.physicsclassroom.com/getattachment/reviews/1Dkin/1Dkinprint/q40a.gif** |   **http://www.physicsclassroom.com/getattachment/reviews/1Dkin/1Dkinprint/q40b.gif** |   **http://www.physicsclassroom.com/getattachment/reviews/1Dkin/1Dkinprint/q40c.gif** |

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| *position*acb1. Three people are all running a race.

Who is has run the farthest? Who has run for the longest amount of time? What can you tell me about their speeds?Label the axes with numbers, find the speed  of each person?*time* |
| 1. A car is driving down an empty road. It stops at a stop sign and then continues on. Which distance vs. time graph best represents this situation? Is the car traveling at a constant speed the whole time? Explain how you know.

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| 1. Thomas and Samantha went for a hike. They recorded data about their journey in the graph at right. Describe what they are doing during the hike. Be as detailed as possible. (When are they walking the fastest and slowest) Explain how you know this. How far did they hike? What was their average speed for the entire trip.

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| 1. Robert rolls down his driveway on a skateboard while Beth keeps track of his position every second for 15 seconds. When they make a graph of the data, the position vs. time graph is a curve that gets steeper as time increases. What does this tell you about Sam’s speed? What would a speed vs. time graph look like for this situation?
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| 1. For the position-time graph, calculate and plot speed on the speed-time graph to the right.
2. The bicycle trip through hilly country

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| 1. A car is driving down an empty road. It stops at a stop sign and then continues on. Which graph best represents this situation? ? Is the car traveling at a constant speed the whole time? Explain how you know.

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| 1. For each speed-time graph, calculate and plot the distance on the position-time graph to the right. For this practice, assume that movement is always away from the starting position.
2. The honey bee among the flowers

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