Walk the Graph

Turn position-time data into a walk you can perform.

PHY.1.8 "Given a 1D motion graph students should replicate the motion predicted by the graph."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle the phrases that explain how to read a position-time graph, then number the table's time entries in the order you would use them to plan your walk.

A Walk Written in Data

1. A student walks along a straight strip of tape on the gym floor. A position-time graph can act as a script for the walk. Time goes on the horizontal axis; position goes on the vertical axis. Choose one end as positive. In a practice trial, a rising line means the walker heads toward that end.

2. In a practice trial, a runner goes from 2 m at 0 s to 8 m at 3 s, then returns to 5 m at 6 s. To copy that trial, start at 2 m, move toward positive positions, turn around at 3 s, and reach 5 m at 6 s. Match the clock and the places.

3. Now consider a new walk along a straight track marked in meters. The table gives points from its position-time graph. The graph connects neighboring points with straight lines. Time is measured from the start. Zero marks the track's origin; larger position values lie toward the positive end. Imagine you must perform this walk, matching the graph throughout.

POINTS ON THE POSITION-TIME GRAPH

Time (s)	Position (m)
0	0
2	4
4	4
6	1
8	1

2 ANSWER WITH EVIDENCE

Use the passage

1. Where must you stand at 0 s, and where must you be at 2 s?

2. How would you act out the graph from 2 s to 4 s?

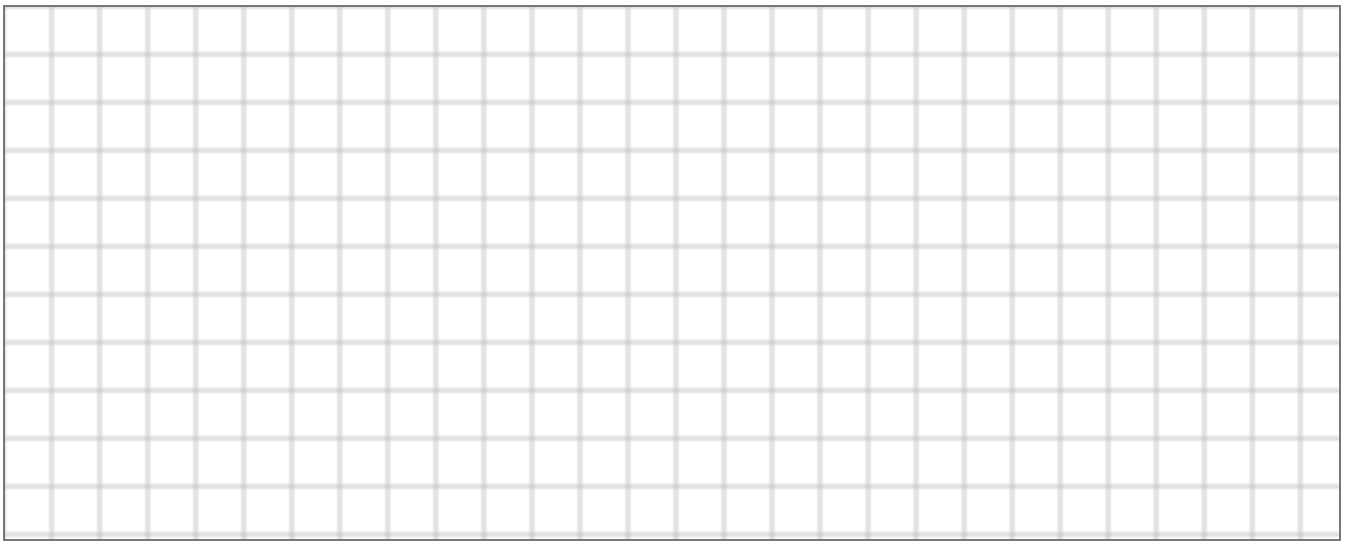
3. From 4 s to 6 s, which direction must you move, and at what constant speed?

4. At 7 s, where should you be, and what should you be doing?

3 YOUR TURN

Your own words

On the grid, invent a position-time graph from 0 to 8 s using at least four straight segments, one pause, and one change of direction; label both axes and units. Under the graph, write directions a classmate could follow to reproduce your motion, including when to stop and turn.



Walk the Graph

PART 1 · READ AND MARK

Circle the phrases that explain how to read a position-time graph, then number the table's time entries in the order you would use them to plan your walk. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Where must you stand at 0 s, and where must you be at 2 s?	**Start at 0 m and reach 4 m at 2 s.**
2	How would you act out the graph from 2 s to 4 s?	**Stand still at 4 m for 2 s.**
3	From 4 s to 6 s, which direction must you move, and at what constant speed?	**Move in the negative direction at 1.5 m/s.**
4	At 7 s, where should you be, and what should you be doing?	**Stand still at 1 m.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Graph: Plot (0 s, 2 m), (2 s, 2 m), (4 s, 6 m), (6 s, 3 m), and (8 s, 5 m), joining neighboring points with straight segments. Label the horizontal axis time (s) and the vertical axis position (m). Stand at 2 m for 2 s, walk to 6 m by 4 s, turn and walk to 3 m by 6 s, then turn and walk to 5 m by 8 s.

Accept equivalent descriptions that match position throughout each straight segment, not only at the listed times. In Part 3, check that the written directions match the student's graph, including its pause and change of direction.