| Name | Date | Period |
|------|------|--------|

## Graphing Constant Velocity: Abbey Road

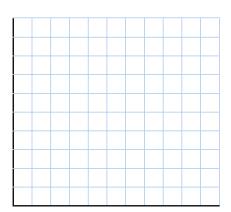
Necessary Background Knowledge

Distance:\_\_\_\_\_ Displacement:\_\_\_\_\_Calculate Speed: Calculate Speed:

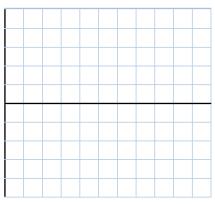
| Scalar  | Vector       |  |  |  |
|---|--------------|--|--|--|
|   |              |  |  |  |
| Distance  | Displacement |  |  |  |
|   |              |  |  |  |
| Speed   | Velocity     |  |  |  |
| Forward: Initial Position: Final Position: Time |              |  |  |  |

Make quantitatively accurate position-time and velocity-time graphs in the space below.

Calculate Velocity:



Mark the initial and final positions on the graph. Calculate the displacement for the entire trial from the position-time graph.

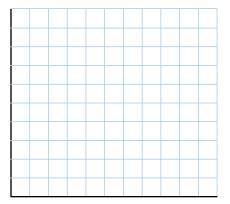


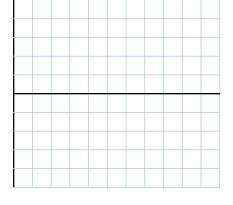
Graphically represent the displacement for the entire trial on the graph. Calculate the displacement from the graphical representation.

| Distance:<br>Calculate Speed:   |   | Calcula                                      | ate Velocity                | •                    |        |       |           |
|---|---|--|-----------------------------|----------------------|--------|-------|-----------|
| Make quantitativ<br>below.  | vely accurate po                              | osition-time an                              | d velocity-t                | ime gra              | phs in | the s | space     |
|   |   |  |                             |                      |        |       |           |
|   |   |  |                             |                      |        |       |           |
|   |   |  |                             |                      |        |       |           |
|   |   |  |                             |                      |        |       |           |
|   |   |  |                             |                      |        |       |           |
|   |   |  |                             |                      |        |       |           |
|   |   |  |                             |                      |        |       |           |
| s to t =s.  | r the time inte                               | Ċ  | graph. Calc<br>graphical re | present              | ation. |       | nent fron |
|   | tial Position:                                | Final Positi                                 | graphical re                | present<br>Time      | ation. |       | nent fron |
| s to t =s.  Forward Fast: Ini   | tial Position:<br>Displacement                | Final Positi<br>:<br>Calcula                 | on:ate Velocity             | oresent<br>Time<br>: | ation. | _     |           |
| Forward Fast: Ini Distance: Calculate Speed:  Make quantitativ              | tial Position:<br>Displacement                | Final Positi<br>:<br>Calcula                 | on:ate Velocity             | oresent<br>Time<br>: | ation. | _     |           |
| Forward Fast: Ini Distance: Calculate Speed:  Make quantitativ              | tial Position:<br>Displacement                | Final Positi<br>:<br>Calcula                 | on:ate Velocity             | oresent<br>Time<br>: | ation. | _     |           |
| Forward Fast: Ini Distance: Calculate Speed:  Make quantitativ              | tial Position:<br>Displacement                | Final Positi<br>:<br>Calcula                 | on:ate Velocity             | oresent<br>Time<br>: | ation. | _     |           |
| Forward Fast: Ini Distance: Calculate Speed:  Make quantitativ              | tial Position:<br>Displacement                | Final Positi<br>:<br>Calcula                 | on:ate Velocity             | oresent<br>Time<br>: | ation. | _     |           |
| Forward Fast: Ini Distance: Calculate Speed:  Make quantitativ              | tial Position:<br>Displacement                | Final Positi<br>:<br>Calcula                 | on:ate Velocity             | oresent<br>Time<br>: | ation. | _     |           |
| s to t = s.  Forward Fast: Ini Distance: Calculate Speed:  Make quantitativ | tial Position:<br>Displacement                | Final Positi<br>:<br>Calcula                 | on:ate Velocity             | oresent<br>Time<br>: | ation. | _     |           |
| Forward Fast: Ini Distance: Calculate Speed:  Make quantitativ              | tial Position:<br>Displacement                | Final Positi<br>:<br>Calcula                 | on:ate Velocity             | oresent<br>Time<br>: | ation. | _     |           |
| s to t = s.  Forward Fast: Ini Distance: Calculate Speed:  Make quantitativ | tial Position: Displacement  vely accurate po | Final Positi<br>: Calcula<br>osition-time an | on:ate Velocity             | Time :               | phs ir | the s | space     |

| Forward-Backwards: Initial Pos | sition: Final Position: | Time |
|--------------------------------|-------------------------|------|
| Distance: Displacemer          | nt:                     |      |
| Calculate Speed:               | Calculate Velocity:     |      |

Make quantitatively accurate position-time and velocity-time graphs in the space below.





Mark the initial and final positions on the graph. Calculate the displacement from the position-time graph for the time interval  $t = _{max} s$  to  $t = _{max} s$ .

Graphically represent the displacement for the time interval  $t = \underline{\hspace{1cm}} s$  to  $t = \underline{\hspace{1cm}} s$ . on the graph. Calculate the displacement from the graphical representation.

## Questions

- 1. What was the approximate total **distance** traveled in the first three situations?
- 2. What was the approximate total **displacement** in the first three situations?
- 3. What was the approximate total **distance** traveled in the last situation?
- 4. What was the approximate total **displacement** in the last situation?
- 5. Do any of the trials have the same **speed**? Which ones? How do you know?
- 6. Do any of the trials have the same **velocity**? Which ones? How do you know?
- 7. What does it mean to have positive displacement? Negative displacement?
- 8. What does it mean to have positive velocity? Negative velocity?