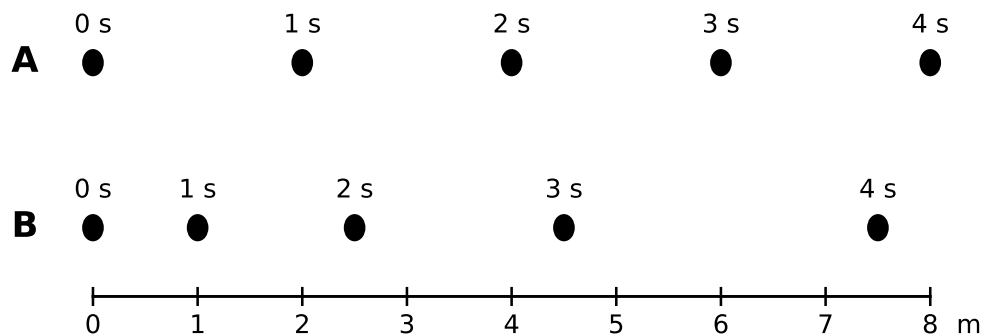


**Part A: Concepts**

1. A car drives around a circular track with its speedometer reading a steady 25 m/s the whole time. Is the car's speed constant? Is its velocity constant? Explain.

2. The motion maps show two toy cars. Each dot marks a car's position once every second.



- Which car moves with a constant velocity? How can you tell?
- What is the velocity of car A? Use  $v = d/t$  and call the direction to the right positive.
- Describe how car B's speed changes.

**Part B: Using  $v = d/t$** 

Show knowns, the equation, and your substitution. Include units, and a direction for velocity and displacement.

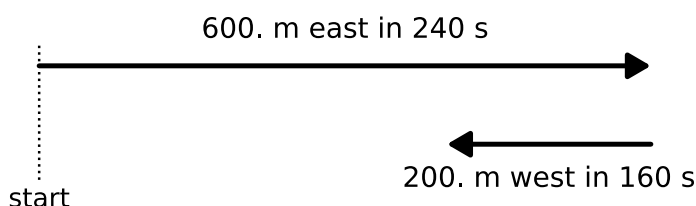
3. A delivery drone flies 840 m north in 60.0 s. What is its average velocity?

4. Diego rolls on his skateboard at a constant velocity of 4.5 m/s west for 12 s. What is his displacement?

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5. Maya walks to school at a steady 1.25 m/s. Her school is 900. m from her house. How long does the walk take, in seconds and in minutes?

### Part C: Average Speed vs. Average Velocity

6. Priya jogs 600. m east along a straight path in 240 s, then turns around and jogs 200. m west in 160 s.



- What total distance did she jog, and how much total time did it take?
- What is her average speed?
- What is her displacement?
- What is her average velocity?
- Why is her average velocity smaller than her average speed? If she had jogged all the way back to the start, what would her average velocity be?