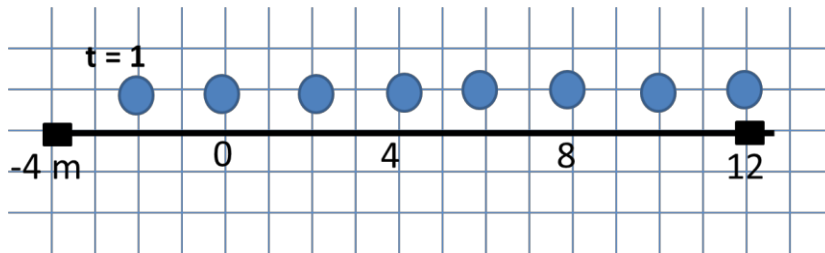


# Worksheet 1.1

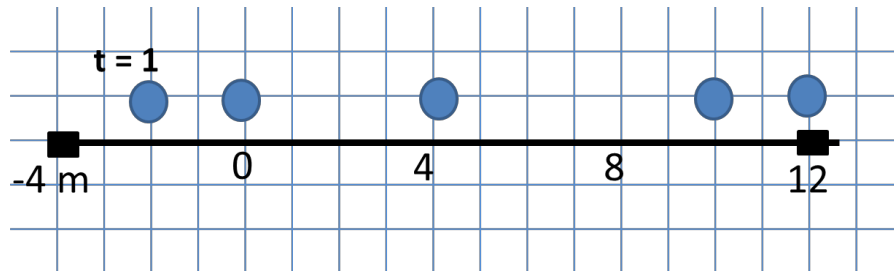
For all diagrams, each point is taken at 1 second intervals. The first point is measured at  $t = 1$  s. The object begins its journey at the black block closest to the first time point.

1.



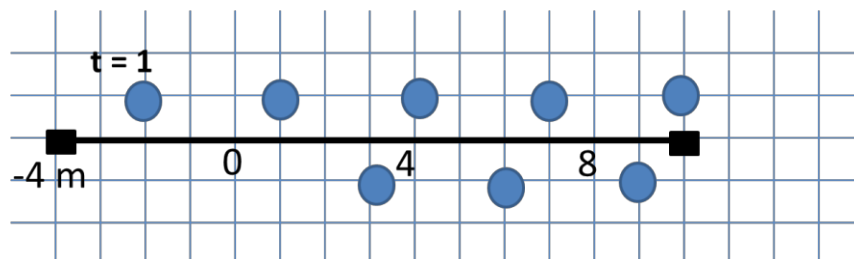
- What is the position of the object at  $t = 3$  s?  $x = 2\text{ m}$
- What is the distance that the object traveled for the entire trip?  $16\text{ m}$
- How much time did the trip take?  $8\text{ s}$
- What is the object's average velocity?  $16\text{ m} / 8\text{ s} = 2\text{ m/s}$
- How much time does it take for the object to travel a distance of 2 m?  $1\text{ sec.}$
- At what clock reading will the object have a displacement of 10 m?  $5\text{ sec}$

2.



- What is the position of the object at  $t = 5$  s?  $x = 8\text{ m}$
- What is the displacement of the object for the entire trip?  $12 - (-4) = 16\text{ m}$
- What is the object's displacement from a clock reading of  $t = 3$  s to  $t = 5$  s?  $\Delta x = 8 - 4 = 4\text{ m}$
- How long (time) was the object's trip?  $5\text{ s}$
- Describe the object's motion (i.e. does it speed up, slow down, move at a constant speed?) *speeds up, then slows down.*

3. In the diagram below, the object moves in one direction and then makes a U-turn and goes back in the opposite direction. Points below the number line indicate time points taken after the U-turn.



- What is the total distance traveled by the object?  $\text{trip 1} = 14\text{ m}$   $\text{trip 2} = 7\text{ m}$   $\text{total} = 21\text{ m}$
- What is the object's total displacement?  $\Delta x = 3 - (-4) = 7\text{ m}$

c) What is the objects average velocity for the whole trip?  $v = \frac{\Delta x}{\Delta t} = \frac{7\text{m}}{8\text{s}} = 7/8 \text{ m/s}$

ave speed =  $\frac{21\text{m}}{8\text{s}} = 2 \frac{5}{8} \text{ m/s}$