



Physics Olympiad and Problem Solving Programs

N210 - Introductory Physics Olympiad

Problem Set 3.1 - Graphical Analysis of Motion Solutions

Name:

Date:

1. B. From the graph, we have $v = \frac{4-0}{5-0} = 0.8$ m/s.
2. C. On the graph, the distance graph is a straight line from 0 to 5 seconds. Thus, it is zero acceleration. From 5 to 8 seconds, the graph is a curved line, the acceleration is non-zero.
3. D. When the velocity is moving toward its origin, it has a negative velocity. During 20-25 seconds period, it is a constant velocity at $v = -1.0$ m/s.
4. B. When $30 < t < 35$, v_x goes from -1.0 m/s to 0. Thus, $a = \frac{0-(-1)}{35-30} = 0.20$ m/s².
5. D. The distance traveled is the area under the graph. Thus, $\frac{1}{2}(5 + 15)(3) = 30$ m.