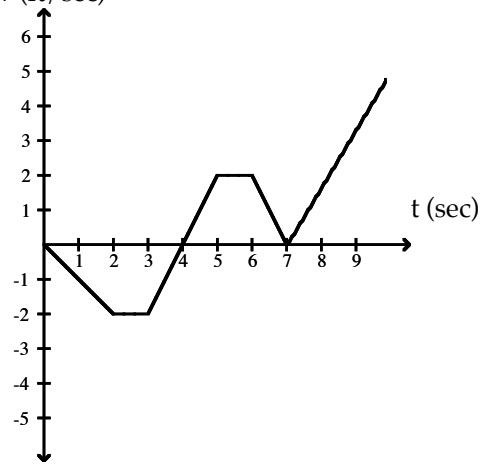
Exam

Name_____

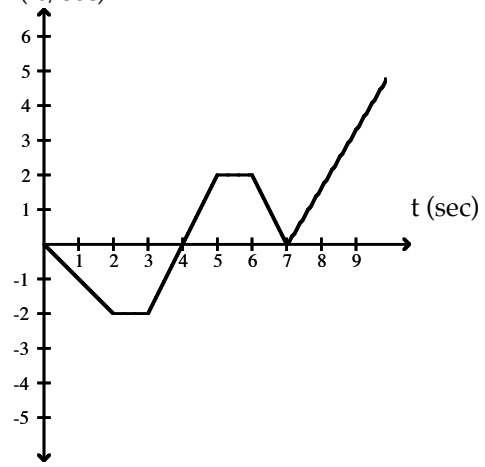
The figure shows the velocity v of a body moving along a coordinate line as a function of time t . Use the figure to answer the question.

1) v (ft/sec) 1) _____



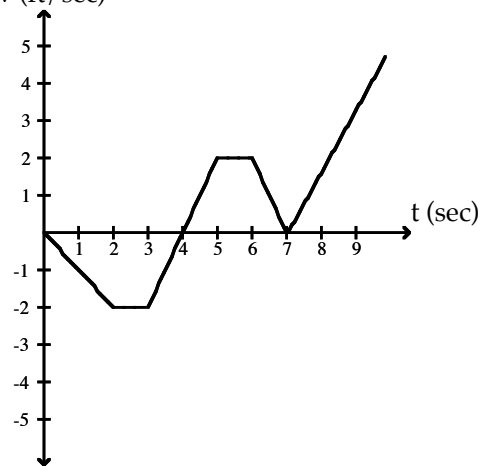
When is the body's acceleration equal to zero?

2) v (ft/sec) 2) _____



What is the body's greatest velocity?

3) v (ft/sec) 3) _____



When does the body reverse direction?

Solve the problem.

4) Given the distance function $s(t) = t^2 + 9t + 10$, where s is in feet and t is in seconds, find the velocity function, v(t), and the acceleration function, a(t). 4) _____

5) At time t, the position of a body moving along the s–axis is $s = t^3 - 27t^2 + 240t$ m. Find the body's acceleration each time the velocity is zero. 5) _____

6) At time $t \geq 0$, the velocity of a body moving along the s–axis is $v = t^2 - 10t + 9$. When is the body moving backward? 6) _____

7) A ball dropped from the top of a building has a height of $s = 256 - 16t^2$ meters after t seconds. How long does it take the ball to reach the ground? 7) _____

8) A runner is competing in an 8–mile race. As the runner passes each miles marker (M), a steward records the time elapsed in minutes (t) since the beginning of the race, as shown in the table. What is the runner's average speed over the first 2 miles? Round your answer to four decimal places. 8) _____

M	0	1	2	3	4	5	6	7	8
t	0	15	29	43	55	67	80	93	109