Stewart page 166

A particle moves along a number line according to , where is measured in seconds and is measured in feet.

1. Find the velocity at time t.
2. What is the velocity after 3 seconds?
3. When is the particle at rest?
4. When is the particle moving to the right?
5. Find the total distance traveled during the first 8 seconds.
6. When is the particle speeding up?
7. Draw a number line diagram to illustrate the motion of the particle.
8. 2.

3. 4.

5. 6.

8. If a ball is given a push so that it has an initial velocity of 5 m/s down a certain inclined plane, then the distance it has rolled after t seconds is .

a. Find the velocity after 2 seconds. b. How long does it take for the velocity to reach 35 m/s?

10. If a ball is thrown vertically upward with a velocity of 80 ft/s, then its height after t seconds is .

a. What is the maximum height reached by the ball?

b. What is the velocity of the ball when it has risen 96ft above the ground?