

Android Acceleration Assessment

1) What is acceleration?

2) How can velocity be calculated using an acceleration vs. time graph?

3) How can the maximum velocity be found using an acceleration vs. time graph?

Write answers and justifications for the following:

1) A particle has an initial velocity of 0 and moves in a straight line and acceleration modeled by the $a(t) = 200 \sin(\pi t/50)$ for $0 \leq t \leq 100$.

a) Draw a sketch of $a(t)$ and in a well-written paragraph, describe the linear motion of the object on the interval $0 \leq t \leq 100$.

b) For what value of t does the particle attain its maximum velocity? Justify your answer.

c) At approximately what velocity is the particle moving at the time found in part b? Show the computations that lead to your answer.

2) In a complete sentence, describe the relationships that exist between the position, velocity, and acceleration functions for a particle moving in a straight line