

1999

The College Board
Advanced Placement Examination
CALCULUS AB
SECTION II

Time—1 hour and 30 minutes

Number of problems—6

Percent of total grade—50

REMEMBER TO SHOW YOUR SETUPS AS DESCRIBED IN THE GENERAL INSTRUCTIONS.

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1. A particle moves along the y -axis with velocity given by $v(t) = t \sin(t^2)$ for $t \geq 0$.
- (a) In which direction (up or down) is the particle moving at time $t = 1.5$? Why?
 - (b) Find the acceleration of the particle at time $t = 1.5$. Is the velocity of the particle increasing at $t = 1.5$? Why or why not?
 - (c) Given that $y(t)$ is the position of the particle at time t and that $y(0) = 3$, find $y(2)$.
 - (d) Find the total distance traveled by the particle from $t = 0$ to $t = 2$.
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