

11 April 2007 and 12 April 2007

Today's AP Free Response Problem

Can be found at:

http://www.collegeboard.com/prod_downloads/ap/students/calculus/calculus_ab_frq_02.pdf

And is the property of ETS CollegeBoard

This is a calculator problem so PLEASE use your calculator!!!!

2002 AP[®] CALCULUS AB FREE-RESPONSE QUESTIONS

3. An object moves along the x -axis with initial position $x(0) = 2$. The velocity of the object at time $t \geq 0$ is given by $v(t) = \sin\left(\frac{\pi}{3}t\right)$.

(a) What is the acceleration of the object at time $t = 4$?

(b) Consider the following two statements.

Statement I: For $3 < t < 4.5$, the velocity of the object is decreasing.

Statement II: For $3 < t < 4.5$, the speed of the object is increasing.

Are either or both of these statements correct? For each statement provide a reason why it is correct or not correct.

(c) What is the total distance traveled by the object over the time interval $0 \leq t \leq 4$?

(d) What is the position of the object at time $t = 4$?