

Neatly show ALL of your work and CLEARLY indicate your answers. Use the back of the page if necessary.

I. Let $f(x) = x^2 - x + 1$. Find and simplify each of the following:

a. $f(-1) =$
(1 point)

b. $f(x-1) =$
(2 points)

b. $\frac{f(x + \Delta x) - f(x)}{\Delta x} =$
(4 points)

II. Below you are given the graphs of $y = x^2 - 4$ and $y = 2x - 1$. Answer each of the following:

a. Clearly indicate on the graph below which graph represents which equation. (1 point)

b. Find the coordinates of all x and y intercepts for each graph and show the coordinates of the intercept points on the graphs below. (4 points)

c. Find all points of intersection of the two graphs and indicate these points on the graph below. (4 points)

III. A particle's position (in inches) at time t (in seconds) along a path is given by the function

$p(t) = t^2 + 1, 0 \leq t$. Find the average velocity of the particle from time $t = 0$ to time $t = 2$ seconds. Draw the line whose slope represents this average velocity on the graph below. (4 points)

