

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

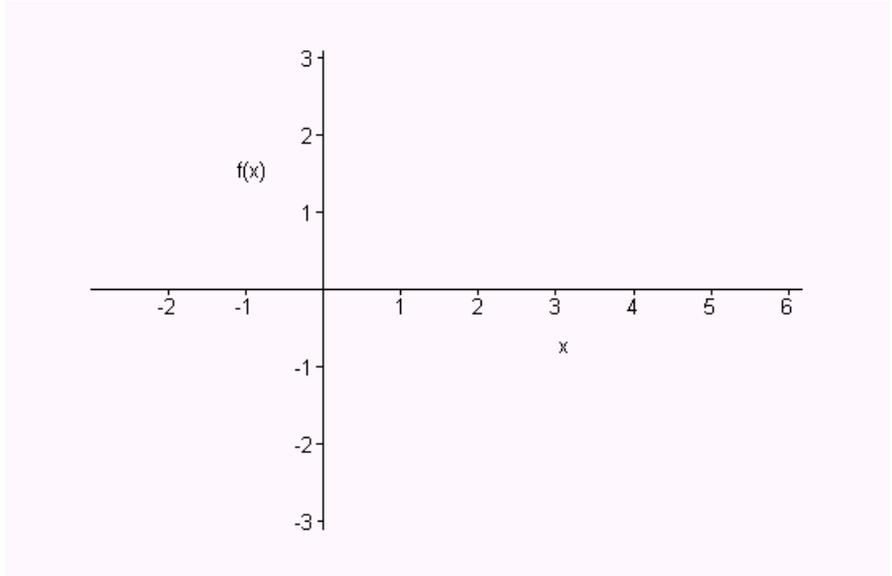
I. Use the graph of the function  $f$  below to find the indicated function values and limits. (1 point each – 11 points total)

$f(0) = \underline{\hspace{2cm}}$

$f(2) = \underline{\hspace{2cm}}$

$f(4) = \underline{\hspace{2cm}}$

$f(-2) = \underline{\hspace{2cm}}$



$\lim_{x \rightarrow 3^+} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow -2} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow -2^+} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 2} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 4} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 5^+} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow -2^-} f(x) = \underline{\hspace{2cm}}$

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

$p(t) = 5 + 4t - t^2, 0 \leq t$ . A graph of this function is given below. Please answer the following questions being sure to neatly show all of your work. (9 points total)

- (a) Find the velocity of the particle from time  $t = 0$  to time  $t = 3$  seconds. Draw (and clearly indicate) the line whose slope represents this velocity on the graph. (3 points)
- (b) Find and simplify an algebraic expression for the velocity of the particle from time  $t = 3$  to time  $t = x$  seconds. (3 points)
- (c) Given that the velocity of the particle at time  $t = 3$  seconds is  $-2$  in/s, draw (and clearly indicate) the line whose slope represents this velocity on the graph of  $p$  and find the equation of that line. (3 points)

