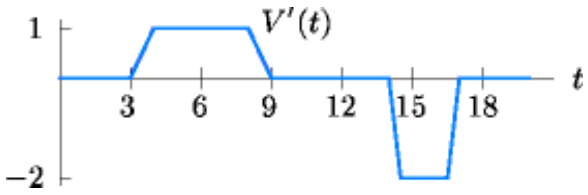
# Homework 2

Section 2.3
Due: 10-4-13

1. Use the **power rule** to find the derivative of $\ell(x) = 1/x^2$.
2. Use the **limit definition of the derivative** to find the derivative of $m(x) = 1/(x+1)$.
3. A child inflates a balloon, admires it for a while and then lets the air out at a constant rate. If $V(t)$ gives the volume of the balloon at time $t$, then the figure below shows $V'(t)$ as a function of $t$.




At what time does the child:

(a) Begin to inflate the balloon?

(b) Finish inflating the balloon?

(c) Begin to let the air out?

(d) What would the graph of $V'(t)$ look like if the child had alternated between pinching and releasing the open end of the balloon, instead of letting the air out at a constant rate?