(Adapted Sp2010 Prelim) The size $f(t)$ of a tumor (in cubic millimeters) is given by $f(t) = \sqrt{t}$, where $t$ is the number of months since the tumor was discovered. In this problem, make sure you give units with your answers.

(a) What is the average rate of change in the size of the tumor during the first six months?

(b) What is the instantaneous rate of change in the size of the tumor after 2 months? (Do not use any differentiation formulas; do not use graph to estimate).

(c) Calculate what the answer to (b) would be if $f(t) = 3^t$?