

Name: \_\_\_\_\_

Suppose the mass of a polar bear cub grows at a rate (in kg/month) given by  $P(t) = 3.2 + e^{-0.7t}$ , where  $t$  is the number of months since birth.

- (a) (10 pts) Assuming the mass of the cub at birth is 0.5 kg, find an expression for the mass of the cub 12 months after birth.
- (b) (10 pts) Evaluate your expression from part (a) using left and right-hand sums with at least 4 subintervals.

(c) (10 pts) Evaluate your expression from part (a) using the Fundamental Theorem of Calculus.