Communicating and Connecting What We Know About Rates of Change:
Average and Instantaneous

Symbolic & Verbal	Graph
A fruit fly population is given by the function $$p(t) = \dfrac{344}{1 + 154 \cdot e^{(-.208t)}}$$ where t represents the time in days and p(t) represents the number of fruit flies.	

Table	Analysis

t	p(t)
0	
5	
10	
15	
20	
25	
30	
35	
40	
45	
50	

Analysis

1. Determine the average rate of change of p(t) over the interval [20, 50]. Please include units.

2. Determine the instantaneous rate of change of p(t) at t = 30. Please include units.

3. At approximately what time is the population of fruit flies growing most rapidly?

4. Determine $\lim\limits_{t \to \infty} (p(t))$