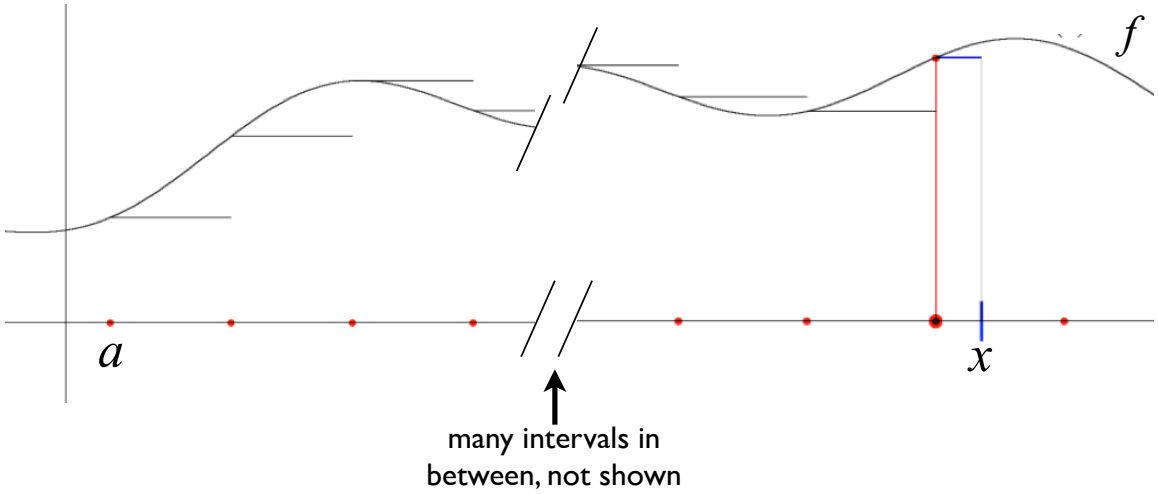
MAT 270 Name_____
Elements of *A* Quiz Recitation Day & Time_____

The graph below shows a rate of change function r and an interval from a to x. The dots on the x-axis indicate the endpoints of intervals that have width Δx, starting from a. Also shown is an approximating constant rate 'step' function created from r, a, and Δx. BEFORE YO BEGIN: CHANGE THE GRAPH LABEL IN THE ILLUSTRATION FROM f to r_f.



1. Write expressions for the values described, in terms of a, x, Δx, and the function r_f. **Do not use any other functions in your answers except r_f.** (You may use $\sum$ with an index like j, the floor function, etc.)

Write an expression for the value of….

a) the accumulation due to the first interval, approximated by using the constant rate shown_____.

b) x at the left side of the third interval _____.

c) the constant rate shown that approximates r_f in the second interval_____.

d) Draw an arrow on the graph pointing to where you would look to find the **value** of your answer to part c).

e) What is the total accumulation from the first 80 completed intervals, approximated by using the constant rates shown? _____.

f) How many completed Δx intervals are there between a and $x = 42.8$? _____.

g) What is the approximating constant rate in the current interval? Write your answer without using the word 'left.' _____.

2. Suppose $x = 0.19$ is within the second interval. Still only using a, x, Δx, and the function r, complete the following.

a) Represent the value of left(0.19) _____.

b) Write an expression for the number of completed intervals between a and $x = 0.19$, and report the value.

_____ = _____