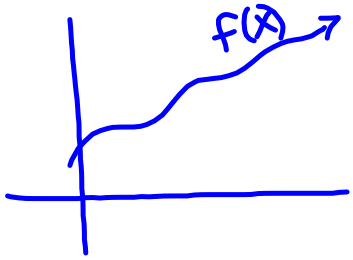
Get out your Unit 8 Homework so I can check it all off please, it is due today!

Nov 3-2:38 PM

8.5 More Integrals as Net Change (8.1 in book)

GIVEN: Graph



where *f(x)* is . . .

. . . An amount or a number

Typical wording:

The graph of a function f is given...

The graph shows the amount/number...

Asked	Do
• number/amount at time a	$f(a)$
• rate at which the amt/# is changing at time a	slope of f at $x=a$
• avg. amt/# between time a & time b	$\frac{1}{b-a}$ · area bet. a & b
• avg. rate of change of the amt/# between time a & time b	$\frac{f(b)-f(a)}{b-a}$

Mar 8-1:53 PM

. . . The rate of change of an amount or a number
Typical wording:

The graph of f is given. Let g be the function given by $g(x) = \int_a^b f(t)dt$

The graph shows the rate at which...

Asked	Do
• the amt. of increase/ decrease bet. time a & time b	• area between $t = a$ & $t = b$
• $g'(b)$ or the rate of change at time b	• $f(b)$
• $g''(b)$ or $f'(b)$	• slope at $t = b$

Feb 28-4:25 PM

Asked	Do
• $g(b)$ or the amt./# at $t=b$ (given amt. at $t=a$)	• initial amt / # + $\int_a^b f(x)\,dx$ (area bet. a & b)
• avg. rate of change of f bet. a & b	• slope of secant line
• avg. rate of change of g bet. a & b	• $\frac{1}{b-a}$ • area bet. a & b
• for what values is g increasing? decreasing?	• $f>0$ $f<0$

GIVEN: Table $\begin{array}{c\|cccc} t & & & & \\ \hline f(t) & & & & \end{array}$
where $f(x)$ is . . .
. . . An amount or a number
Typical wording:

The # of people, L, . . .

The amt. of water, W, . . .

The weight of a bird, B, . . .

Mar 21-8:42 AM

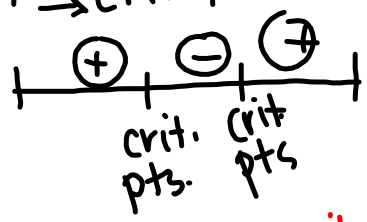
Asked	Do
• Estimate the rate of change at time c	• $\frac{f(b)-f(a)}{b-a}$ (where c is bet. a & b)
• Estimate the avg. value of f between a & b time	• $\frac{1}{b-a}$ • Reimann sum or Trapezoid Rule
• $\int_a^b f'(t)dt$	• $f(b)-f(a)$

GIVEN: Function equation(s)
$f(t) = 100t^2 \cdot \sin\sqrt{t}$
where $f(x)$ is . . .
. . . The rate of change of an amount or number
Typical wording:

The rate at which water enters...

The traffic flow...

The rate at which people leave...

Asked	Do
How many/much between $t=a$ & $t=b$	$\int_a^b f(t)\,dt$
At what rate .... at time a?	$f(a)$
What is the avg. rate of change of _____ bet. time a & time b?	$\frac{1}{b-a}\int_a^b f(t)\,dt$
What is the #/amt at time c? (given a #/amt at time a)	# at time a $+\int_a^c f(t)\,dt$
When is the rate increasing? decreasing?	f' → crit. points 
When is the # (amt) a max/min? What is max/min?	$f'(t)=0$ and crit. pts & $\int f(t)$ at cr. pts. & end pts.

Homework

8.5 WKS

Oct 21-8:47 AM