

March 20

Mock Exam:
March 27th - 7:30 am
Room 5
Have you paid for your
AP test?

When do you need to take the
derivative of an integral?

March 20

Students will verbally explain how to
apply the second part of the
Fundamental Theorem of Calculus
(using the words:
chain rule, derivative, function, bound...)

How to use excel...

E2	fx =C2-D2											
A	B	C	D	E	F	G	H	I	J	K	L	M
slice number	x-value	y1-value	y2-value	base	height	area	width	volume				
1	0	6	1.098612	4.901388	2.450694	12.0118	0.25	3.00295				
2	0.25	6.242228	1.178655	5.063573	2.531787	12.81989	0.25	3.204972				
3	0.5	6.438791	1.252763	5.186028	2.593014	13.44744	0.25	3.361861				
4	0.75	6.548767	1.321756	5.227011	2.613505	13.66082	0.25	3.415205				
5	1	6.540302	1.386294	5.154008	2.577004	13.2819	0.25	3.320475				
6	1.25	6.394153	1.446919	4.947234	2.473617	12.23756	0.25	3.05939				
7	1.5	6.106106	1.504077	4.602028	2.301014	10.58933	0.25	2.647333				
8	1.75	5.688069	1.558145	4.129925	2.064962	8.528139	0.25	2.132035				
9	2	5.167706	1.609438	3.558268	1.779134	6.330637	0.25	1.582659				
10	2.25	4.586609	1.658228	2.928381	1.464191	4.287708	0.25	1.071927				
11	2.5	3.997141	1.704748	2.292393	1.146196	2.627533	0.25	0.656883				
12	2.75	3.458168	1.7492	1.708969	0.854484	1.460287	0.25	0.365072				58.58582
13	3	3.030023	1.791759	1.238263	0.619132	0.766648	0.25	0.191662				
14	3.25	2.769079	1.832581	0.936497	0.468249	0.438513	0.25	0.109628				
15	3.5	2.722402	1.871802	0.850599	0.4253	0.36176	0.25	0.09044				
16	3.75	2.922902	1.909543	1.01336	0.50668	0.513449	0.25	0.128362				
17	4	3.385426	1.94591	1.439515	0.719758	1.036102	0.25	0.259026				
18	4.25	4.104128	1.981001	2.123127	1.061563	2.253833	0.25	0.563458				
19	4.5	5.051419	2.014903	3.036516	1.518258	4.610214	0.25	1.152554				
20	4.75	6.17861	2.047693	4.130917	2.065459	8.532239	0.25	2.13306				
21	5	7.418311	2.079442	5.338869	2.669435	14.25176	0.25	3.562941				
22	5.25	8.688449	2.110213	6.578236	3.289118	21.63659	0.25	5.409148				
23	5.5	9.897684	2.140066	7.757618	3.878809	30.09032	0.25	7.522579				
24	5.75	10.95186	2.169054	8.782803	4.391401	38.56881	0.25	9.642203				

derivative = $R(t) = r'(t)$

2. The rate at which people enter an auditorium for a rock concert is modeled by the function R given by $R(t) = 1380t^2 - 675t^3$ for $0 \leq t \leq 2$ hours; $R(t)$ is measured in people per hour. No one is in the auditorium at time $t = 0$, when the doors open. The doors close and the concert begins at time $t = 2$.

(a) How many people are in the auditorium when the concert begins? $A = \int_0^2 \text{rate}$ $(0,0)$ people t

(b) Find the time when the rate at which people enter the auditorium is a maximum. Justify your answer. $R'(t) = 0$ derivative = 0

(c) The total wait time for all the people in the auditorium is found by adding the time each person waits, starting at the time the person enters the auditorium and ending when the concert begins. The function w models the total wait time for all the people who enter the auditorium before time t . The derivative of w is given by $w'(t) = (2-t)R(t)$. Find $w(2) - w(1)$, the total wait time for those who enter the auditorium after time $t = 1$. $\leftarrow \text{rate}$ Amount = $\int_1^2 \text{rate}$

(d) On average, how long does a person wait in the auditorium for the concert to begin? Consider all people who enter the auditorium after the doors open, and use the model for total wait time from part (c). $\leftarrow \text{total wait time}$ # of people (part a)