AP Calculus AB *Ms. J. Blackwell,*

Unit 6 – Applications of Definite Integrals

Sanderson High - Fall Semester 2019 – *Unit 6 – Chapter 7– Applications of Definite Integrals*
Textbook: *Calculus – Graphical, Numerical, Algebraic - 2007 by Prentice Hall*

☺ *"[Mathematics] is an independent world – Created out of pure intelligence."* – William Wordsworth

Day	Date		Topic	Homework
1	11/18 Mon	7.4 – 7.5	Arc Length & **Unit Test 5 – Part 2** *(November 18th – National Vichyssoise Day)*	*HW 1 = On – line & Math is Fun Link*
2	11/19 Tues	7.2	Intro to Area Between Curves *(November 19th – National Carbonated Beverage with Caffeine & Play Monopoly Day)*	*HW 2*
3	11/20 Wed	7.1 – 7.2	Area Between Curves *(November 20th – National Peanut Butter Fudge Day)*	*AP Central Problem – UT 8 Part A*
4	11/21 Thurs	7.4	Surface Area & Arc Length *(November 21st is National Gingerbread Cookie Day)*	*Video # 1 & 2*
5	11/22 Fri		**Quiz** *(November 22nd – National Cranberry Relish Day)*	*Graded HW = Graphic Organizer = Google Classroom (Be Impressive!)*

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6	11/25 **Mon**	Volume Cross Sections w/ Play Dough *(November 25th – National Parfait Day)*	*Cross Section Video = 20 min, & On – line Set A, B, C, or D*
7	11/26 **Tues**	Volume of Solids – Shell Method *(November 26th – National Cake Day)*	*Have a Good Holiday Break, Do 3 Good Deeds, Smile, Stay Safe!!!*
	11/27 **Wed**	*Vacation*	
	11/28 **Thurs**	*Holiday*	
	11/29 **Fri**	*Holiday*	

			(December is also National Pear and Tie Month)	
8	12/2 **Mon**	7.3	Volume of Solids –Disk & Washer Method *(December 2nd – National Fritter Day)*	On – line Volume Notes, Discovery Pages, & Butterfly Picture = Wed
9	12/3 **Tues**	7.3	Volume of Solids – Shell Method & Review *(December 3rd – National Day of Giving)*	HW 9
10	12/4 **Wed**		Review Activities *(December 4th – National Cookie Day)*	WS Circuit Training & Read Chapter 7
11	12/5 **Thurs**		Project Plan Time *(December 5th – National Sacher Torte Day)*	Project & AP Central Problem – UT 8 – Part B
12	12/6 **Fri**		**Quiz** *(December 6th – National Gazpacho & Microwave Oven Day)*	Project, Video # 1b, 1, & 2
13	12/9 **Mon**	6.2	*UT 7 – Powers & Products of Trig Functions* *(December 9th – National Pastry Day)*	Study & On – line Day 10 Review Material
14	12/10 **Tues**		**Unit Test 6** *(December 11th – National Noodle Ring Day)*	HW Video # 1a, 1b, WS Powers # 23 – 41 odd

Compute the arc length of the graph of the given function on the interval given.

1. $f(x) = 2(x-1)^{3/2}$ on $[1,5]$

3. $f(x) = \dfrac{x^3}{6} + \dfrac{1}{2x}$ on $[1,3]$

2. $f(x) = \dfrac{2}{3}(x^2+1)^{3/2}$ on $[1,4]$

4. $f(x) = \ln(\cos x)$ on $\left[0, \dfrac{\pi}{4}\right]$

Find the equivalent to "cosh" in terms of "e". _____

("cosh" is short for hyperbolic cosine)

Compute the arc length of the graph of the given function on the interval given.
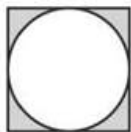
1. $f(x) = \cosh x$ on $[0,1]$

3. $f(x) = x^2 - \dfrac{1}{8}\ln x$ on $[1,2]$

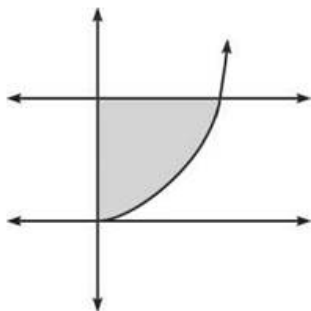2. $f(x) = \sqrt{4-x^2}$ on $[-2,2]$

4. $f(x) = x^{3/2}$ on $[0,1]$

1. If a circle is inscribed in a square whose side length is 9, find the area of the shaded region.

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2. Describe the technique you used to complete problem 1.

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3. Below are the graphs of y = 4 and y = x² in the first quadrant. Where do these two graphs intersect?

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4. Evaluate the definite integrals $\int_0^2 4\,dx$ and $\int_0^2 x^2\,dx.$ Using those two integrals, how can you find the shaded area? (Use a technique similar to the circle and square problem from number 1.)