

GROUP NAME:

Logo:

Date: 10/4/12

Topics: Test Review

Student Names (First and Last)

Speaker/Presenter:

Writer/Prep: Danielle Vangyak

QC/Leader:

Instructions:

TEST # 1 : ANSWERS.

(1)

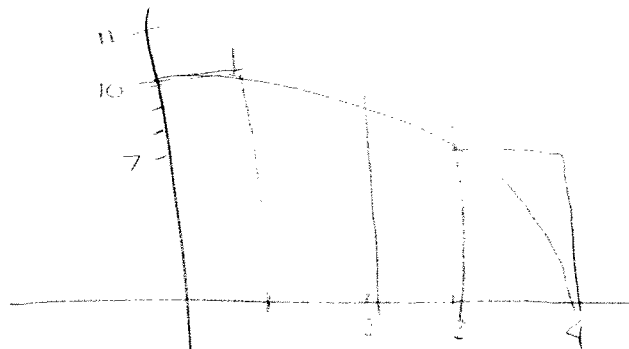
$$y(x) = -x^2 + 2x + 10$$

$$f(0) = 10 \times 1 \leftarrow \text{width}$$

$$f(1) = 11 \times 1$$

$$f(2) = 10 \times 1$$

$$f(3) = 7 \times 1$$



- Put in the values for $f(x)$
- Then times by width which was (1)
- Add up all values for the area

estimate area = 38 cubic units

GROUP NAME: Takehome test #2	Student Names (First and Last)
Logo: Problem # 3	Speaker/Presenter: Eric Zhuang
Date: 10/4/12	Writer/Prep: _____
Topics:	QC/Leader: _____

Instructions:

average value over interval $[0, 4]$ (The average height)

$$\textcircled{2} \quad A_{\text{area}} = \int_0^4 (-x^2 + 2x + 10) dx = -\frac{1}{3}x^3 + x^2 + 10x \Big|_0^4 = 34\frac{2}{3}$$

$$\textcircled{3} \quad \text{Average} \frac{1}{b-a} \int_a^b f(x) dx : \frac{1}{4} \left(-\frac{1}{3}x^3 + x^2 + 10x \right) \Big|_0^4 = \frac{34\frac{2}{3}}{4}$$

- Average height
of function over
 $[0, 4]$

GROUP NAME:

Student Names (First and Last)

Logo:

Speaker/Presenter: _____

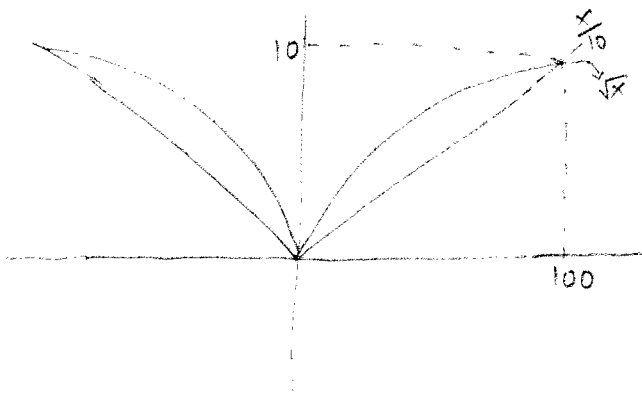
Date: _____

Writer/Prep: _____

Topics:

QC/Leader: _____

Instructions: Draw a picture of the vase. To get the area of a slice
 4) of the vase, find the area between the curves $y = x/10$ and $y = \sqrt{x}$
 when above the x-axis and $x > 10$.



$$\int_0^{100} \sqrt{x} - \frac{x}{10} dx$$

$$= \frac{x^{3/2}}{3/2} - \frac{x^2}{20} \Big|_0^{100}$$

$$= \frac{1000}{3/2} - \frac{10000}{20}$$

$$= \frac{2000}{3} - 500$$

$$= 166.67$$

GROUP NAME:

Student Names (First and Last)

Logo:

Speaker/Presenter: Kyle Geheiser

Date: _____

Writer/Prep: _____

Topics:

QC/Leader: _____

Instructions:

⑤

$$y = \frac{x}{10}$$

$$y = \sqrt{x}$$

$$\text{Volume} = \pi(10y)^2 - \pi(y^2)^2 = \pi(100y^2 - y^4)$$

$$x = y^2$$

$$x = 10^2 y$$

$$\int_0^{10} \pi(100y^2) - \pi(y^2)^2 - \pi \int_0^{10} (100y^2 - y^4) = 41887.9$$

GROUP NAME: Charlie Naumey

Logo: _____

Date: _____

Topics: _____

Student Names (First and Last)

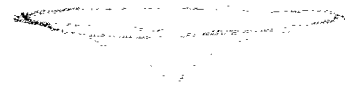
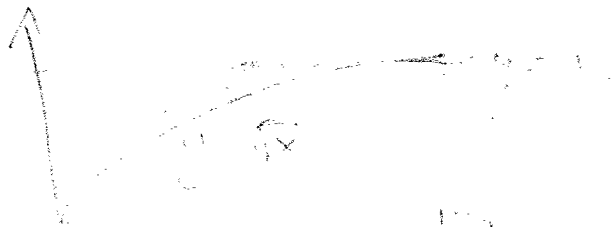
Speaker/Presenter: _____

Writer/Prep: _____

QC/Leader: _____

Instructions: Take home test #6

Volume between $y = \sqrt{x}$, $y = 10$, and the y-axis revolved about the y-axis.



[Faint handwritten notes and calculations, including the word 'Volume' and some numbers, are visible but mostly illegible.]

GROUP NAME: Rachael Sacatelli Logo: _____	Student Names (First and Last) Speaker/Presenter: _____
Date: _____ Topics: _____	Writer/Prep: _____ QC/Leader: _____

Instructions: # 7

$\sin(\theta)$
 $\cos(\theta)$
 $\tan(\theta)$
 $\cot(\theta)$
 $\sec(\theta)$
 $\csc(\theta)$

$\sin^2(\theta) + \cos^2(\theta) = 1$
 $\tan(\theta) = \frac{\sin(\theta)}{\cos(\theta)}$
 $\cot(\theta) = \frac{\cos(\theta)}{\sin(\theta)}$
 $\sec(\theta) = \frac{1}{\cos(\theta)}$
 $\csc(\theta) = \frac{1}{\sin(\theta)}$

GROUP NAME:	Student Names (First and Last) Oresta HYSANI
Logo:	Speaker/Presenter: _____
Date: _____	Writer/Prep: _____
Topics:	QC/Leader: _____

Instructions:

8

$$\int_0^3 x \sinh(x^2) dx$$

$$\text{Let } u = x^2$$

$$du = 2x dx$$

$$\frac{du}{2} = x dx$$

$$\frac{1}{2} \int_0^9 \sinh(u) du$$

$$\frac{1}{2} \cosh(u) \Big|_0^9$$

$$= \frac{1}{2} \cosh(9) - \frac{1}{2} \cosh(0)$$

$$= 2025.77 - 0.5$$

$$= 2025.27$$

GROUP NAME:

Mr. Bajels

Student Names (First and Last)

Logo:

Speaker/Presenter: _____

Date: _____

Writer/Prep: _____

Topics:

QC/Leader: _____

Instructions:

(9)

$$a = 3 \quad u = x$$

$$\int_0^3 \sqrt{9-x^2} dx = \frac{1}{2} u \sqrt{a^2 - u^2} + \frac{a^2}{2} \sin^{-1}\left(\frac{u}{a}\right) \Big|_0^3$$

$$= \frac{1}{2} x \sqrt{(3)^2 - x^2} + \frac{(3)^2}{2} \sin^{-1}\left(\frac{x}{3}\right) \Big|_0^3$$

$$\frac{1}{2} (3) \sqrt{9 - (3)^2} + \frac{9}{2} \sin^{-1}\left(\frac{3}{3}\right) - \frac{1}{2} (0) \sqrt{9 - (0)^2} + \frac{9}{2} \sin^{-1}\left(\frac{0}{3}\right)$$

$$= 0 + \frac{9}{2} \sin^{-1}(1) - 0 + 0$$

$$\frac{9}{2} \sin^{-1}(1)$$

GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter: <u>Chirag Patel</u>
Date: <u>10/9/12</u>	Writer/Prep: _____
Topics:	QC/Leader: _____

Instructions:

10. $\int \cosh^4(\sin x) \sinh(\sin x) \cos x \, dx$

$u = \cosh(\sin x)$

$du = \sinh(\sin x) \cos x \, dx$

$= \int u^4 \, du$

$= \frac{u^5}{5} + C$

$= \frac{\cosh^5(\sin x)}{5} + C$

$= \frac{1}{5} \cosh^5(\sin x) + C$

GROUP NAME: PINK

Student Names (First and Last)

Logo:

Speaker/Presenter: _____

Date: 10/4/12

Writer/Prep: Kimberly Jack

Topics: #11 on take home test

QC/Leader: _____

Instructions:

$$11. \int \frac{1}{(x-3)(x+2)} dx$$

$$\left(\frac{A}{x-3} + \frac{B}{x+2} = \frac{x+1}{(x-3)(x+2)} \right) \begin{matrix} (x-3) \\ (x+2) \end{matrix} = A(x+2) + B(x-3) = x+1$$

$$x=3 \rightarrow 5A=4 \quad A=4/5 \quad x=-2 \rightarrow -5B=-1 \quad B=1/5$$

$$\int \frac{x+1}{(x-3)(x+2)} dx = \int \frac{4/5}{x-3} + \frac{1/5}{x+2} dx = \int \frac{4}{5} \cdot \frac{1}{x-3} + 5 \cdot \frac{1}{x+2} dx$$

$$= \frac{4}{5} \ln|x-3| + 5 \ln|x+2| + C$$

<p>GROUP NAME:</p>	<p>Student Names (First and Last)</p>
<p>Logo:</p>	<p>Speaker/Presenter: _____ Writer/Prep: <u>Alex Fajgi'er</u> QC/Leader: _____</p>
<p>Date: <u>10/4</u></p>	
<p>Topics: <u>#112</u></p>	

Instructions:

$$\int \theta^3 \sin \theta \, d\theta$$

$$= \int \theta^3 \sin \theta \, d\theta$$

$$- 3\theta^2 \cdot \cos \theta$$

$$+ 6\theta \cdot \sin \theta$$

$$- 6 \cdot \cos \theta$$

$$+ 0 \cdot \sin \theta$$

$$- \cos \theta$$

~~$$= \int (\theta^3 \cos \theta + 3\theta^2 \sin \theta + 6\theta \cos \theta + 6 \sin \theta) \, d\theta$$~~

$$= \int (-\theta \cos \theta + 3\theta^2 \sin \theta + 6\theta \cos \theta + 6 \sin \theta) \, d\theta + C$$

~~Handwritten scribbles~~

GROUP NAME:

Student Names (First and Last)

Logo:

Speaker/Presenter:

Date: 10-4-12

Writer/Prep: Pat Simon

Topics:

QC/Leader:

Instructions:

#13.

$$\int \cos^3 x \sin^2 x \, dx$$

$$\int \cos^2 x \cos x \sin^2 x \, dx$$

$$\int (1 - \sin^2 x) \cos x \sin^2 x \, dx$$

$$\int \cos x \sin^2 x - \cos x \sin^4 x \, dx$$

$$\frac{\sin^3 x}{3} - \frac{\sin^5 x}{5} + C$$

GROUP NAME:

Student Names (First and Last)

Logo:

Speaker/Presenter: Anjum Kothariya

Date: _____

Writer/Prep: _____

Topics:

QC/Leader: _____

Instructions: Given the following evaluation of the integral 14) using trig substitution.

$$\int \frac{1}{\sqrt{16-x^2}} dx.$$

$$x = 4 \sin \theta \longrightarrow \frac{x}{4} = \sin \theta$$

$$dx = 4 \cos \theta d\theta \quad \theta = \sin^{-1}\left(\frac{x}{4}\right)$$



$$\begin{aligned} \sqrt{16-x^2} &= \sqrt{16-(4\sin\theta)^2} \\ &= \sqrt{16-16\sin^2\theta} \\ &= \sqrt{16(1-\sin^2\theta)} \\ &= \sqrt{16\cos^2\theta} \\ &= 4\cos\theta \end{aligned}$$

$$\begin{aligned} &\int \frac{1}{\sqrt{16-x^2}} dx \\ &= \int \frac{dx}{\sqrt{16-x^2}} \\ &= \int \frac{4 \cos \theta d\theta}{4 \cos \theta} \\ &= \int d\theta \\ &= \theta + C \\ &= \sin^{-1}\left(\frac{x}{4}\right) + C \end{aligned}$$