Final Portfolio

Isabella Ruiz A01570125

1ST AND 2ND PARTIAL PROJECTS

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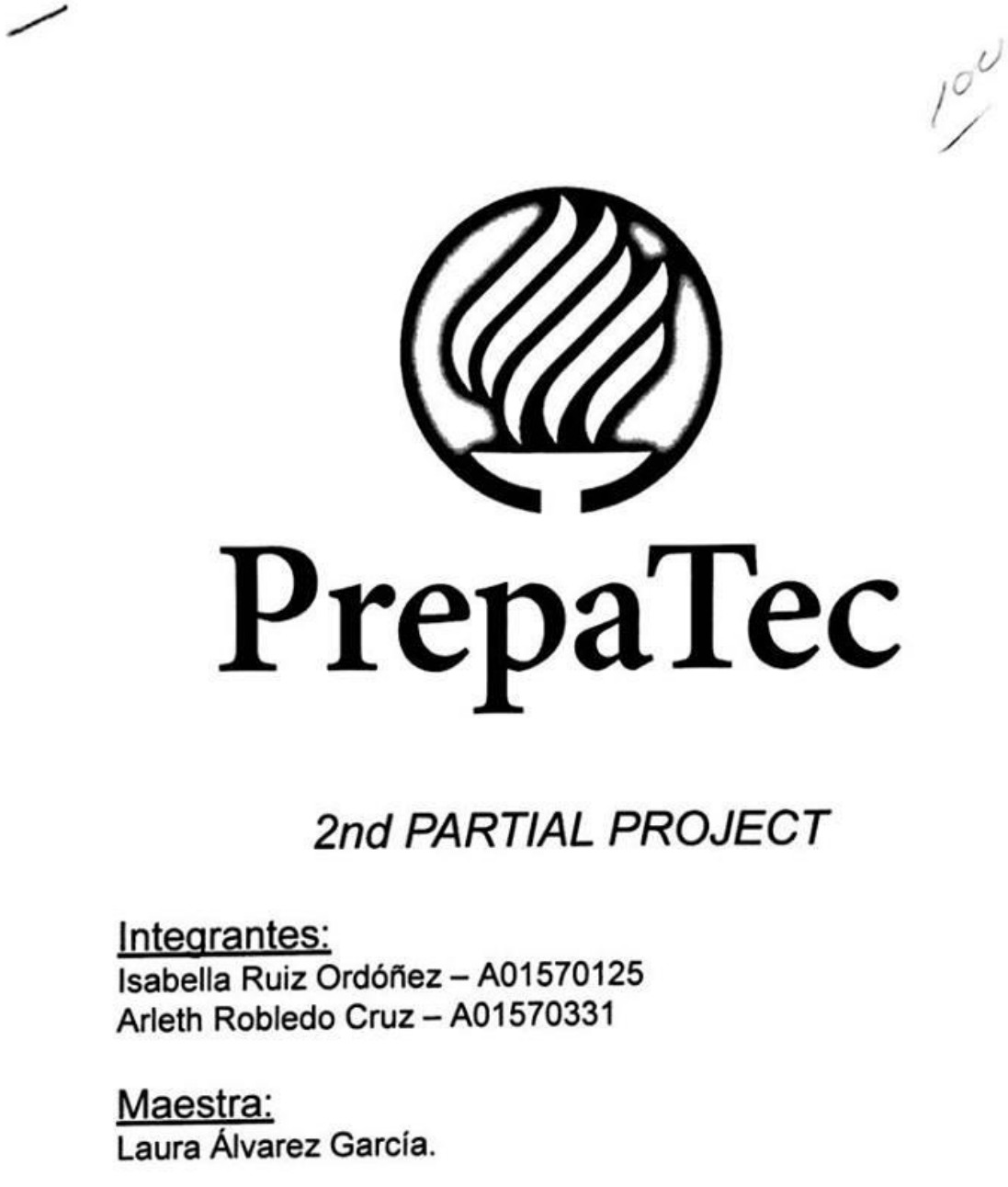


PrepaTec

2nd PARTIAL PROJECT

Integrantes:
Isabella Ruiz Ordóñez – A01570125
Arleth Robledo Cruz – A01570331

Maestra:
Laura Álvarez García.

Quiz 1 First partial

Prepa Tec
Calculus II

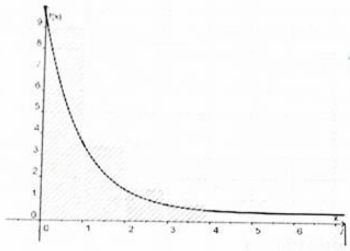
Campus Cumbres
1st partial Quiz # 2A

Name: Isabella Ruiz Ordóñez I.D. A01570175 March, 2017

90 (smiley face)

I. Multiple choice. Choose the letter of the right answer (10 points).

1. Choose the sentence that best describes the approximate area below the graph of $f(x)$:



(a) Approximation of the area on the interval $[0,4]$ using 4 partitions with left-hand calculations. ✓

b) Approximation of the area on the interval $[1,5]$ using 4 partitions with right-hand calculations.

c) Approximation of the area on the interval $[0,4]$ using 4 partitions with right-hand calculations.

d) Approximation of the area on the interval $[1,5]$ using 4 partitions with left-hand calculations.

II. Evaluate the integral using the following values. **SHOW THE STEPS OF YOUR PROCEDURE.** (5 points each)

$\int_2^4 x\,dx = 9$ $\int_2^4 x^3 dx = 54$ $\int_2^4 dx = 7$

a. $\int_2^4 (5x^3+4x+6)dx =$ 348 $5x^3dx + 4x\,dx + 6dx =$ 5(54) 270, 4(9) 36, 6(7) 42

b. $\int_2^4 23\,dx =$ 161 $(23)(7) = 161$

c. $\int_5^5 x^3 dx =$ ~~54~~ 0 (5)

d. $\int_4^2 x\,dx =$ −9 $-\int_2^4 x\,dx = 9$

IV. Procedure. Solve the following problem *showing your entire procedure.*

1) Approximate the area of a plane regions using left hand, right hand and ~~middle points~~ approximations.

$f(x) = 9 - x^2$ on $[3,5]$ 4 rectangles **(20 points)**

$\frac{5-3}{4} = \frac{2}{4} = \frac{1}{2}$

Area (Left hand) = $-10.75u^2$

Area (Right hand) = $-15.5u^2$

x	y
3	0
3.5	−3.25
4	−7
4.5	−11.25
5	−16

AREA: 0, −1.625, −3.5, −5.625, −8 — Left, Right

Middle Point: −13.125

QUIZ 1 Partial 1 CORRECTIONS

II. $\int_2^4 x\,dx = 9$ $\int_2^4 x^3dx = 54$ $\int_2^4 dx = 7$

c) $\int_5^5 x^3 dx = 0$

IV. $f(x) = 9 - x^2$ on $[3,5]$ (x_1, x_2)

4 rectangles

$\Delta x = \frac{b-a}{n}$

$\Delta x = \frac{5-3}{4} = \frac{2}{4} = \frac{1}{2} \rightarrow 0.5$

L { 0, −1.625, −3.5, −5.625, −8 } R

Area — Left: $-10.75u^2$

Area — Right: $-18.75u^2$

Quiz 2 First partial

CALCULUS II

FIRST PARTIAL

QUIZ 1A

Name: Isabella Ruiz Ordoñez ID#: A00, 701 75 Date: 01 / 16 / 18

Answer the following problems with complete procedure

1. Find the **approximate** value of $(3.04)^3$ (20 pts)

$(3.04)(3.04)(3.04)$

$= 28.09$

-20

2. Given the equation $f(x) = x^2 - 2x + 3$ find the line tangent to the curve at $x = a = 0$. (20 pts)

$f'(x) = 2x - 2$

$= 2(0) - 2$

$m = 0 - 2$

$m = -2$

$x = 0$ $y = 3$

$f(x) = 0^2 - 2(0) + 3$

$f(x) = 0 - 0 + 3$

$f(x) = 3$

$(y - y_1) = m(x - x_1)$

$y - 3 = -2(x - 0)$

$y - 3 = -2x$

$y = -2x + 3$

$f(x) = -2x + 3$

3. The edge of a cube w
the maximum possibl

-20

-15

Quiz 2 Partial 1

1. $(3.04)^3$

$f(x) = x^3$

$f'(x) = 3x^2$

$x = 3$

$dx = .04$

$f(x) + f'(x)\,dx$

$x^3 + 3x^2\,dx$

$(3)^3 + 3(3)^2(.04)$

$27 + 27(0.4)$

$27 + 1.08$

$= 28.08$

3. $(20)^3$

$f(x) = x^3$

$f'(x) = 3x^2$

$dv = 0.1$

$x^3 + 3x^2 + dx$

$dv = 3(20)^2 \cdot .1\,cm$

$f'(x) \cdot dx$

$V = 20^3 \pm f'(x) \cdot dx$

$V = 8000 \pm 120\,cm^3$

4. $V = \pi r^2 h$

a) $V_1 = \pi (4.5)^2 (19)$

$= 890.64$

$V_2 = \pi (4.5)^2 (19.5)$

$= 941.535$

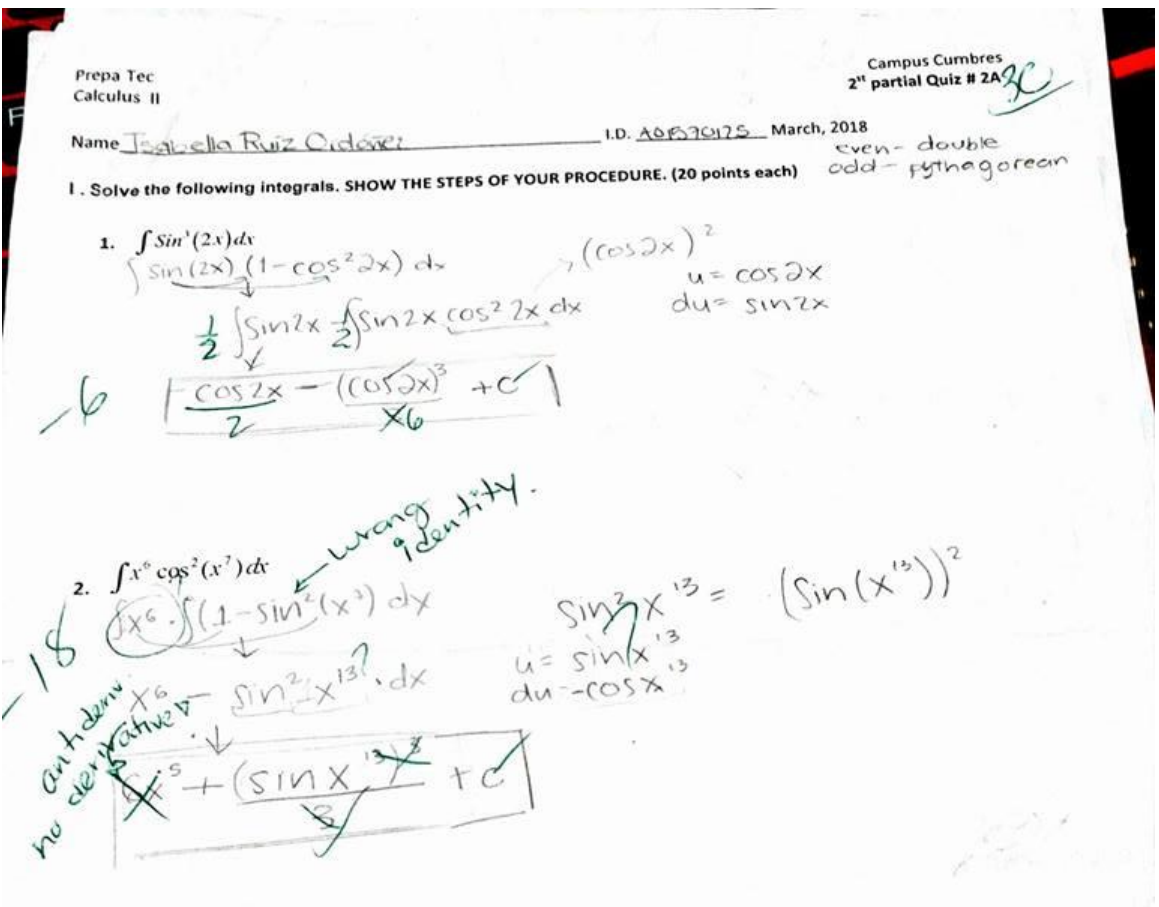
$\Delta V = 50.9\,cm^3$

b) $dy = \pi 2r\,dh$

$dv = \pi (4.5)^2 (.8)$

$dv = 22.61\,cm^3$

Quiz 1 Second Partial



Prepa Tec
Calculus II

Campus Cumbres
2nd partial Quiz # 2A

Name Isabella Ruiz Cadena I.D. A01570125 March, 2018

even - double
odd - pythagorean

I. Solve the following integrals. SHOW THE STEPS OF YOUR PROCEDURE. (20 points each)

1. $\int Sin^3(2x)dx$

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

$u = \cos 2x$
$du = \sin 2x$

$\frac{1}{2}\int \sin 2x - \frac{1}{2}\int \sin 2x \cos^2 2x\,dx$

$\frac{\cos 2x}{2} - \frac{(\cos 2x)^3}{6} + C$

-6

2. $\int x^6 \cos^2(x^7)dx$

wrong identity.

$\int x^6 \cdot \int (1-\sin^2(x^7))\,dx$

$\sin^2 x^{13} = (\sin(x^{13}))^2$

$u = \sin x^{13}$
$du = -\cos x^{13}$

$\int x^6 - \sin^2 x^{13}\,dx$

can't derive x^6 no derivative

$\frac{x^7}{7} + \frac{(\sin x^{13})^3}{3} + C$

-18

Quiz 1 SECond Partial

3. $\int 9x^4 \tan^3(x^5)dx$

$\int 9x^4 \tan(x^5)(\quad$

$\int 9x^4 \int \tan(x^5)\int$

$\int \tan(9x^9)\int$

$\tan 9x^9 \sec^2 x^5$

13

7x

1. $\int \sin^3(2x)\,dx$

$\int \sin^2(2x)\cdot \sin(2x)\,dx$

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

$\int \sin(2x) - \int \cos^2(2x^2)\sin(2x)$

$u = \cos 2x$
$du = -2\sin(2x)$

$-\cos(2x) + \frac{1(\cos^3(2x)}{2(3)} + C$

$\frac{-\cos(2x)}{2} + \frac{\cos^3(2x)}{6} + C$

$\int x^6 \left[\frac{1}{2}(1+\cos 2(x^7))\right]$

$\frac{1}{2}\int x^6 [(1+\cos 2(x^7))]$

$u = 2x^7$
$du = 14x^6$

$\frac{1}{2}\int x^6 + x^6 \cos 2x^7$

$\frac{1}{2}\left(\frac{x^4}{7} + \frac{\sin(2x^7)}{14} + C\right)$ → $\frac{1}{2}\left(\frac{x^7}{7} + \frac{\sin(2x^7)}{14} + C\right)$

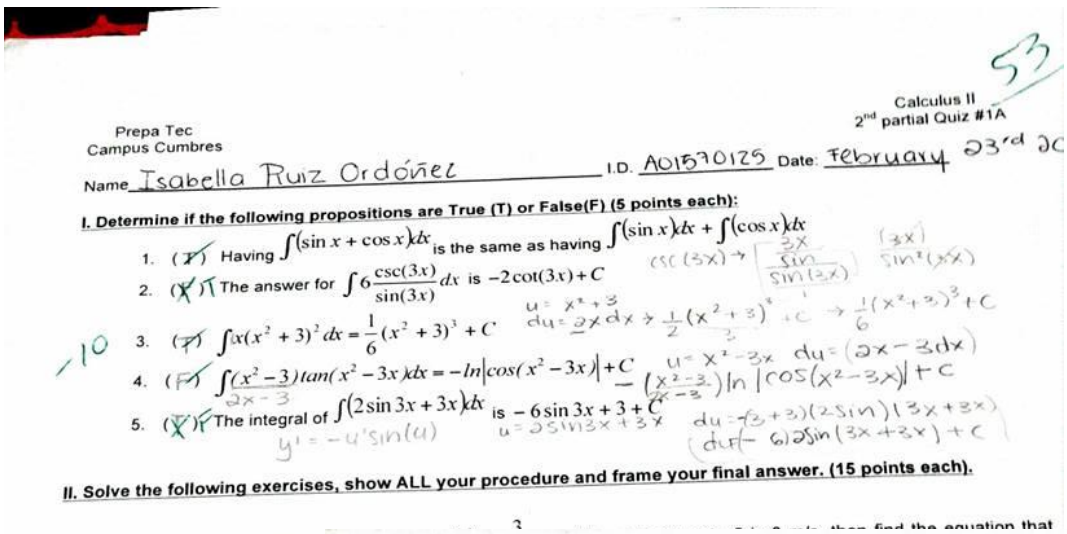
$\int 9x^4 \tan^3(x^5)dx$

$9\int x^4 \tan^2(x^5)\,dx$

$9\int x^4(\sec^2(x^5) - 1)\tan(x^5)$

$= 9\left(\frac{1}{5}\tan(x^5) - \frac{x^5}{5}\right) + C$

Quiz 2 Second partial



Prepa Tec
Campus Cumbres

Calculus II
2nd partial Quiz #1A

Name Isabella Ruiz Ordóñez I.D. A01570125 Date: February 23rd 20

I. Determine if the following propositions are True (T) or False(F) (5 points each):

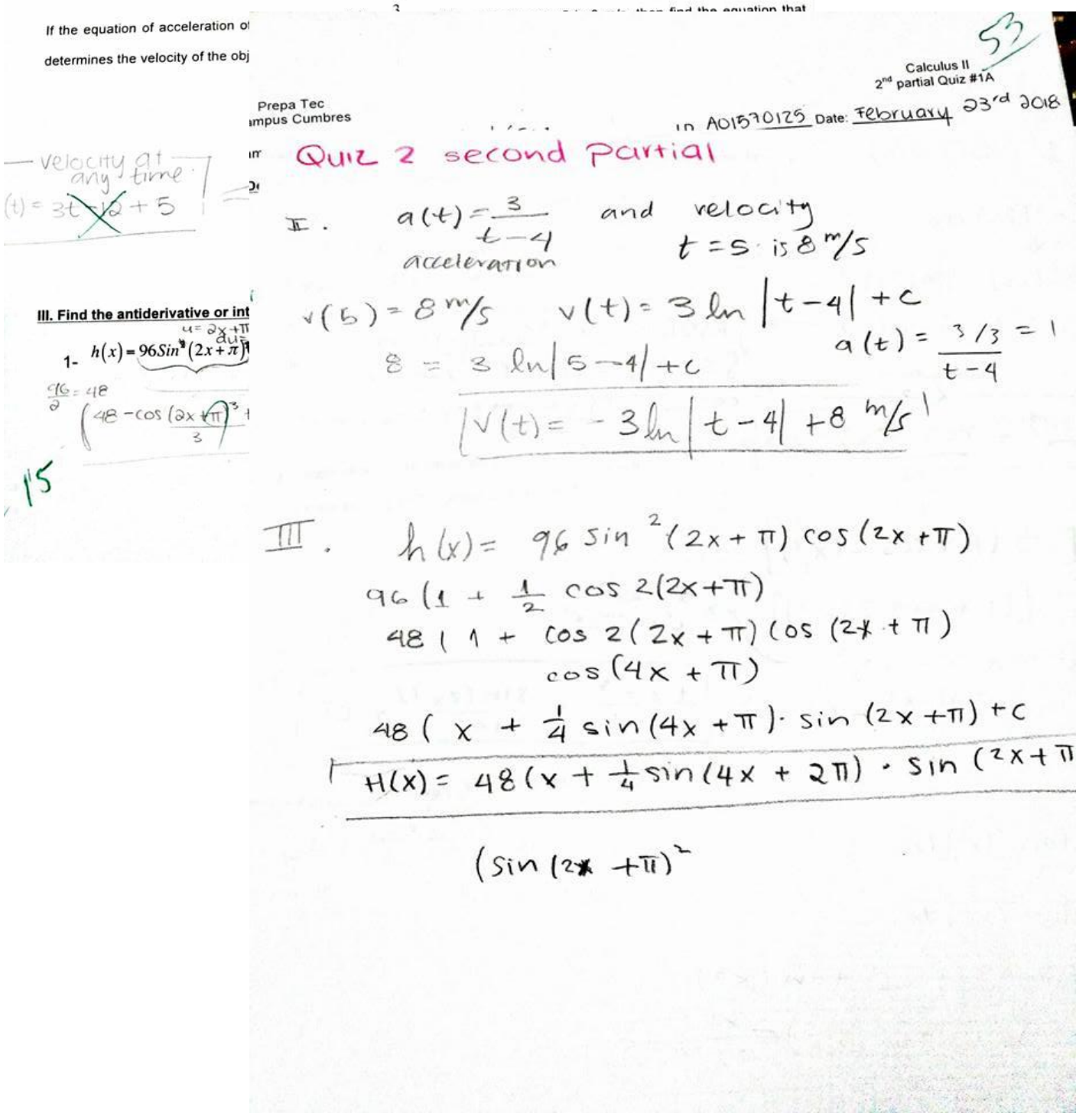
1. (F) Having $\int(\sin x + \cos x)dx$ is the same as having $\int(\sin x)dx + \int(\cos x)dx$
2. (F) The answer for $\int 6\frac{\csc(3x)}{\sin(3x)}dx$ is $-2\cot(3x)+C$
3. (T) $\int x(x^2+3)^2dx = \frac{1}{6}(x^2+3)^3 + C$
4. (F) $\int\frac{(x^2-3)}{2x-3}\tan(x^2-3x)dx = -\ln|\cos(x^2-3x)|+C$
5. (F) The integral of $\int(2\sin 3x + 3x)dx$ is $-6\sin 3x + 3 + C$

-10

II. Solve the following exercises, show ALL your procedure and frame your final answer. (15 points each).

If the equation of acceleration o

determines the velocity of the obj



Prepa Tec
Campus Cumbres

Calculus II
2nd partial Quiz #1A

ID A01570125 Date: February 23rd 2018

velocity at any time
$(t) = 3t^2 + 5$

III. Find the antiderivative or int

1- $h(x) = 96Sin^2(2x+\pi)$

$\frac{96}{2} = 48$

$\left(48 - \cos(2x+\pi)\right)^3$

15

Quiz 2 second partial

I. $a(t) = \frac{3}{t-4}$ acceleration and velocity $t=5$ is $8\ m/s$

$v(5) = 8\ m/s$ $\quad v(t) = 3\ln|t-4| + C$

$8 = 3\ln|5-4| + C$ $\quad a(t) = \frac{3/3}{t-4} = 1$

$v(t) = -3\ln|t-4| + 8\ m/s$

III. $h(x) = 96\sin^2(2x+\pi)\cos(2x+\pi)$

$96\left(1 + \frac{1}{2}\cos 2(2x+\pi)\right)$

$48\left(1 + \cos 2(2x+\pi)\right)(\cos(2x+\pi))$

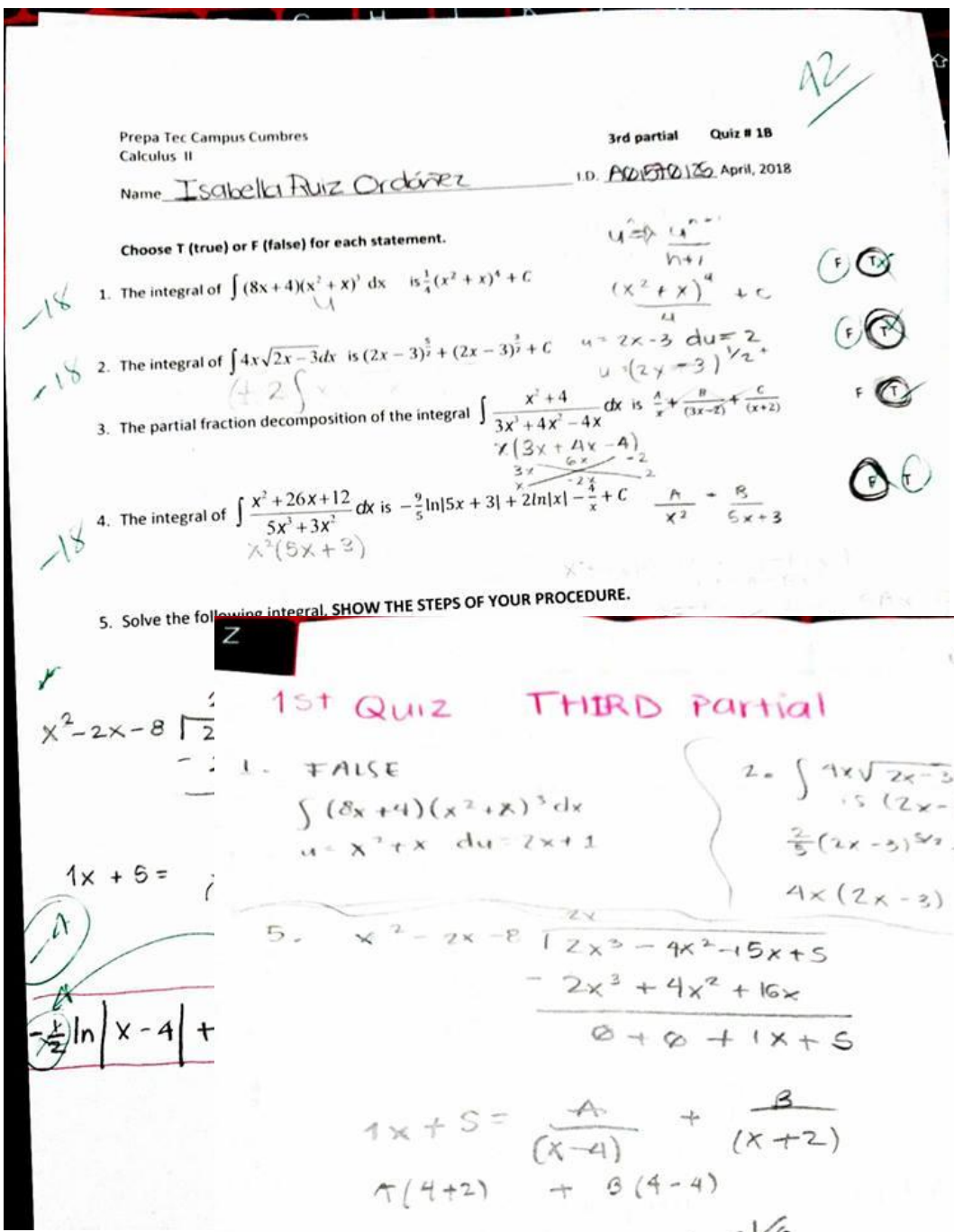
$\cos(4x+\pi)$

$48\left(x + \frac{1}{4}\sin(4x+\pi)\cdot\sin(2x+\pi) + C\right)$

$H(x) = 48\left(x + \frac{1}{4}\sin(4x+2\pi)\cdot\sin(2x+\pi)\right.$

$(\sin(2x+\pi)^2$

Quiz 1 Third partial



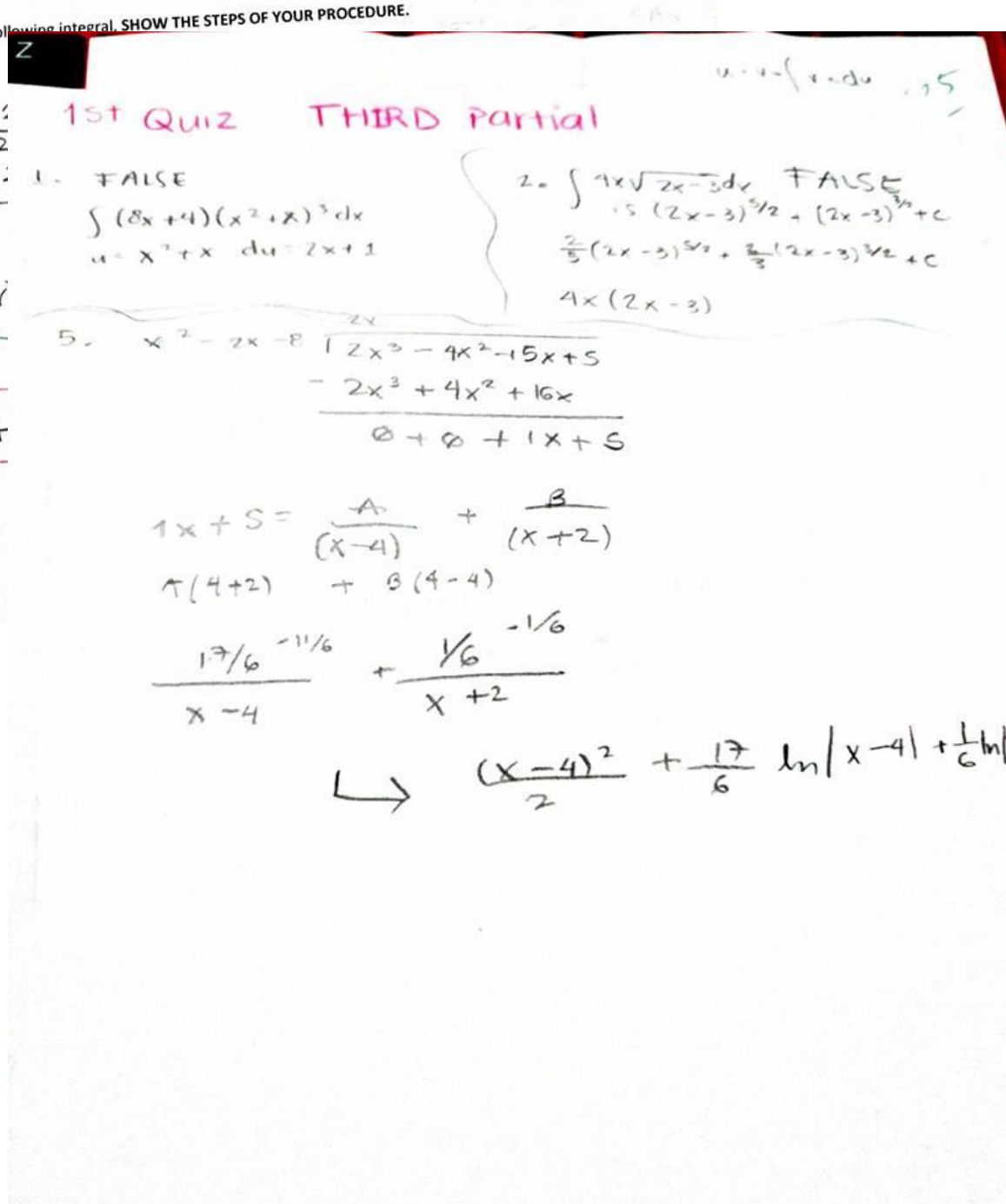
Prepa Tec Campus Cumbres
Calculus II

3rd partial Quiz # 1B

Name Isabella Ruiz Ordóñez I.D. A01570126 April, 2018

Choose T (true) or F (false) for each statement.

1. The integral of $\int (8x+4)(x^2+x)^3\,dx$ is $\frac{1}{4}(x^2+x)^4 + C$ — F
2. The integral of $\int 4x\sqrt{2x-3}\,dx$ is $(2x-3)^{\frac{5}{2}} + (2x-3)^{\frac{3}{2}} + C$ — F
3. The partial fraction decomposition of the integral $\int \frac{x^2+4}{3x^3+4x^2-4x}\,dx$ is $\frac{A}{x} + \frac{B}{(3x-2)} + \frac{C}{(x+2)}$ — F
4. The integral of $\int \frac{x^3+26x+12}{5x^3+3x^2}\,dx$ is $-\frac{9}{5}\ln|5x+3| + 2\ln|x| - \frac{4}{x} + C$ — F
5. Solve the following integral. **SHOW THE STEPS OF YOUR PROCEDURE.**



1st Quiz THIRD partial

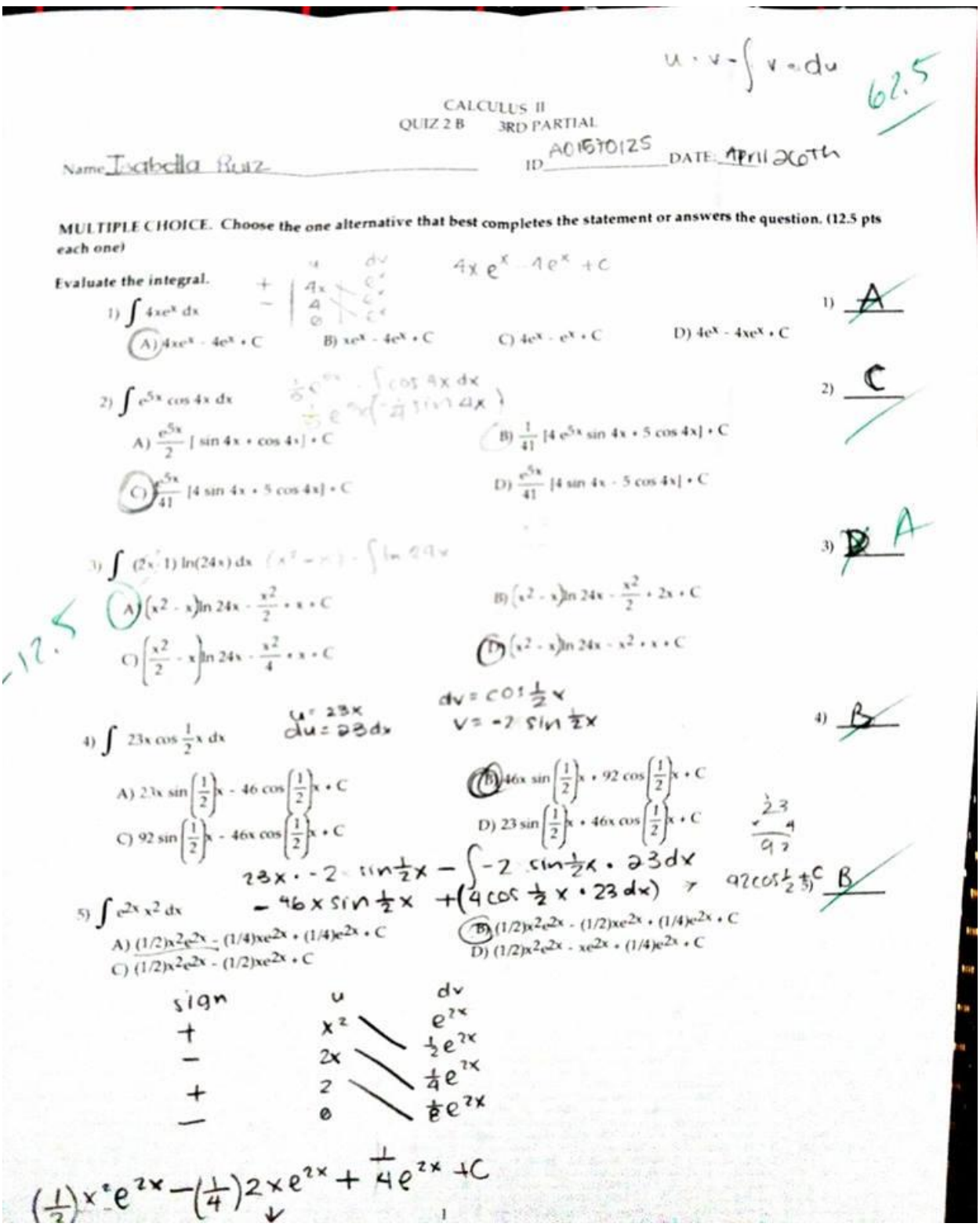
1. FALSE
$\int (8x+4)(x^2+x)^3\,dx$
$u = x^2+x \quad du = 2x+1$

2. $\int 4x\sqrt{2x-3}\,dx$ FALSE
$\frac{2}{5}(2x-3)^{5/2} + \frac{2}{3}(2x-3)^{3/2} + C$
$4x(2x-3)$

5. $x^2-2x-8 \;\overline{)\; 2x^3-4x^2-15x+5}$
$-2x^3+4x^2+16x$
$0+0+1x+5$

$1x+5 = \frac{A}{(x-4)} + \frac{B}{(x+2)}$
$A(4+2) + B(4-4)$
$\frac{17/6}{x-4} + \frac{-1/6}{x+2}$
$\frac{(x-4)^2}{2} + \frac{17}{6}\ln|x-4| + \frac{1}{6}\ln|$

Quiz 2 Third partial



$u \cdot v - \int v \cdot du$

62.5

CALCULUS II
QUIZ 2 B 3RD PARTIAL

Name Isabella Ruiz ID A01570125 DATE April 20th

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. (12.5 pts each one)

Evaluate the integral.

1) $\int 4xe^x\,dx$

A) $4xe^x - 4e^x + C$ B) $xe^x - 4e^x + C$ C) $4e^x - e^x + C$ D) $4e^x - 4xe^x + C$

1) A

$4x e^x - 4e^x + C$

2) $\int e^{5x} \cos 4x\,dx$

A) $\frac{e^{5x}}{2}[\sin 4x + \cos 4x] + C$ B) $\frac{1}{41}[4e^{5x}\sin 4x + 5\cos 4x] + C$

C) $\frac{e^{5x}}{41}[4\sin 4x + 5\cos 4x] + C$ D) $\frac{e^{5x}}{41}[4\sin 4x - 5\cos 4x] + C$

2) C

3) $\int (2x - 1)\ln(24x)\,dx$

A) $\left(x^2 - x\right)\ln 24x - \frac{x^2}{2} + x + C$ B) $\left(x^2 - x\right)\ln 24x - \frac{x^2}{2} + 2x + C$

C) $\left(\frac{x^2}{2} - x\right)\ln 24x - \frac{x^2}{4} + x + C$ D) $\left(x^2 - x\right)\ln 24x - x^2 + x + C$

3) D A

-12.5

4) $\int 23x \cos\frac{1}{2}x\,dx$

$u = 23x$ $du = 23dx$ $dv = \cos\frac{1}{2}x$ $v = -2\sin\frac{1}{2}x$

A) $23x\sin\left(\frac{1}{2}\right)x - 46\cos\left(\frac{1}{2}\right)x + C$ B) $46x\sin\left(\frac{1}{2}\right)x + 92\cos\left(\frac{1}{2}\right)x + C$

C) $92\sin\left(\frac{1}{2}\right)x - 46x\cos\left(\frac{1}{2}\right)x + C$ D) $23\sin\left(\frac{1}{2}\right)x + 46x\cos\left(\frac{1}{2}\right)x + C$

4) B

$23x \cdot -2\sin\frac{1}{2}x - \int -2\sin\frac{1}{2}x \cdot 23dx$

$-46x\sin\frac{1}{2}x + (4\cos\frac{1}{2}x \cdot 23dx)$

$92\cos\frac{1}{2}x + C$

5) $\int e^{2x}x^2\,dx$

A) $(1/2)x^2e^{2x} - (1/4)xe^{2x} + (1/4)e^{2x} + C$ B) $(1/2)x^2e^{2x} - (1/2)xe^{2x} + (1/4)e^{2x} + C$

C) $(1/2)x^2e^{2x} - (1/2)xe^{2x} + C$ D) $(1/2)x^2e^{2x} - xe^{2x} + (1/4)e^{2x} + C$

5) B

sign	u	dv
+	x^2	e^{2x}
−	$2x$	$\frac{1}{2}e^{2x}$
+	2	$\frac{1}{4}e^{2x}$
−	0	$\frac{1}{8}e^{2x}$

$\left(\frac{1}{2}\right)x^2e^{2x} - \left(\frac{1}{4}\right)2xe^{2x} + \frac{1}{4}e^{2x} + C$

Activities

activity 1.1 partial

Activity 1.1: Getting started on differentials

Name Isabella Ruiz Ordoñez ID A01570125 Date January 9th 2018

Remember the following

Equation of a line in point-slope form: $y - y_1 = m(x - x_1)$

$y - 3 = -2(x - 0)$
$y - 3 = -2x + 0$
$y = -2x + 3$

Equation of the tangent line: $f(x) = f'(a)[x - x_1] + f(a)$

Solve the following

1. Given the equation $f(x) = x^2 - 2x + 3$ find

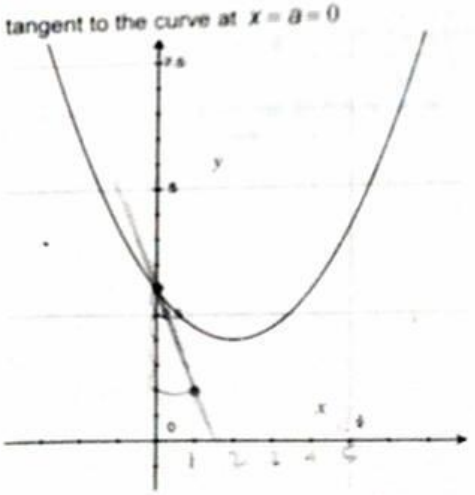
   a) $f(0) =$ 3

   b) $f'(x) =$ $2x - 2$

   derivative c) $f'(0) =$ -2 $2(0) - 2$

   d) Give the equation of the line tangent to the curve at $x = a = 0$ $y = -2x + 3$

   e) The following graph belongs to $f(x) = x^2 - 2x + 3$, graph the equation of the line tangent to the curve at $x = a = 0$



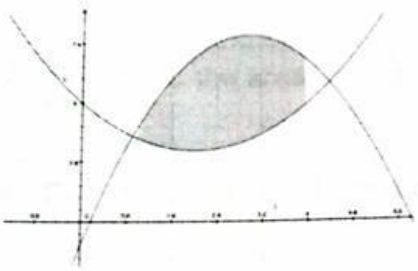
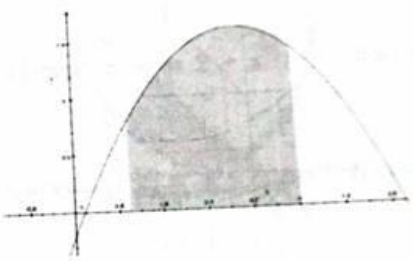
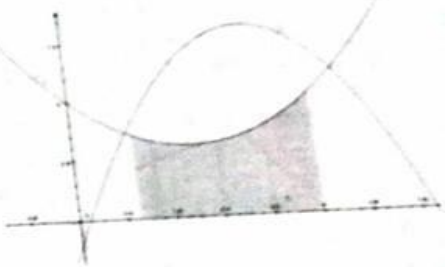
I chose this activity because it was the first activity of the semester (or at least, that's what I think, but I'm not 100% certain). Since it was the first, it marked the beginning of the class. Beginnings are important, That's why I'm placing this activity here.

activity 3rd partial

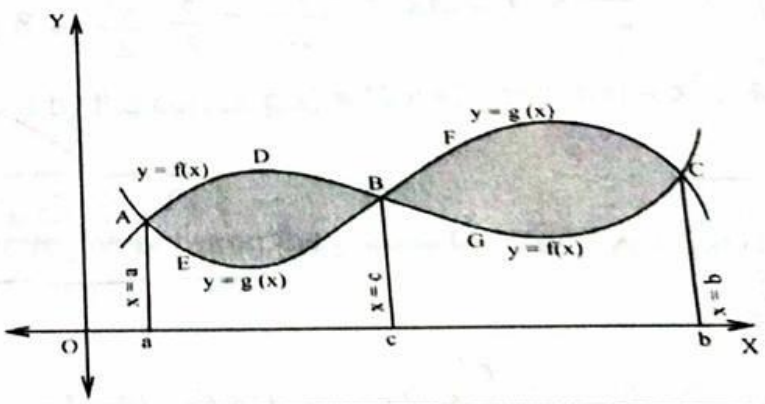
€0.5/10

Activity 4.3: Area between two curves

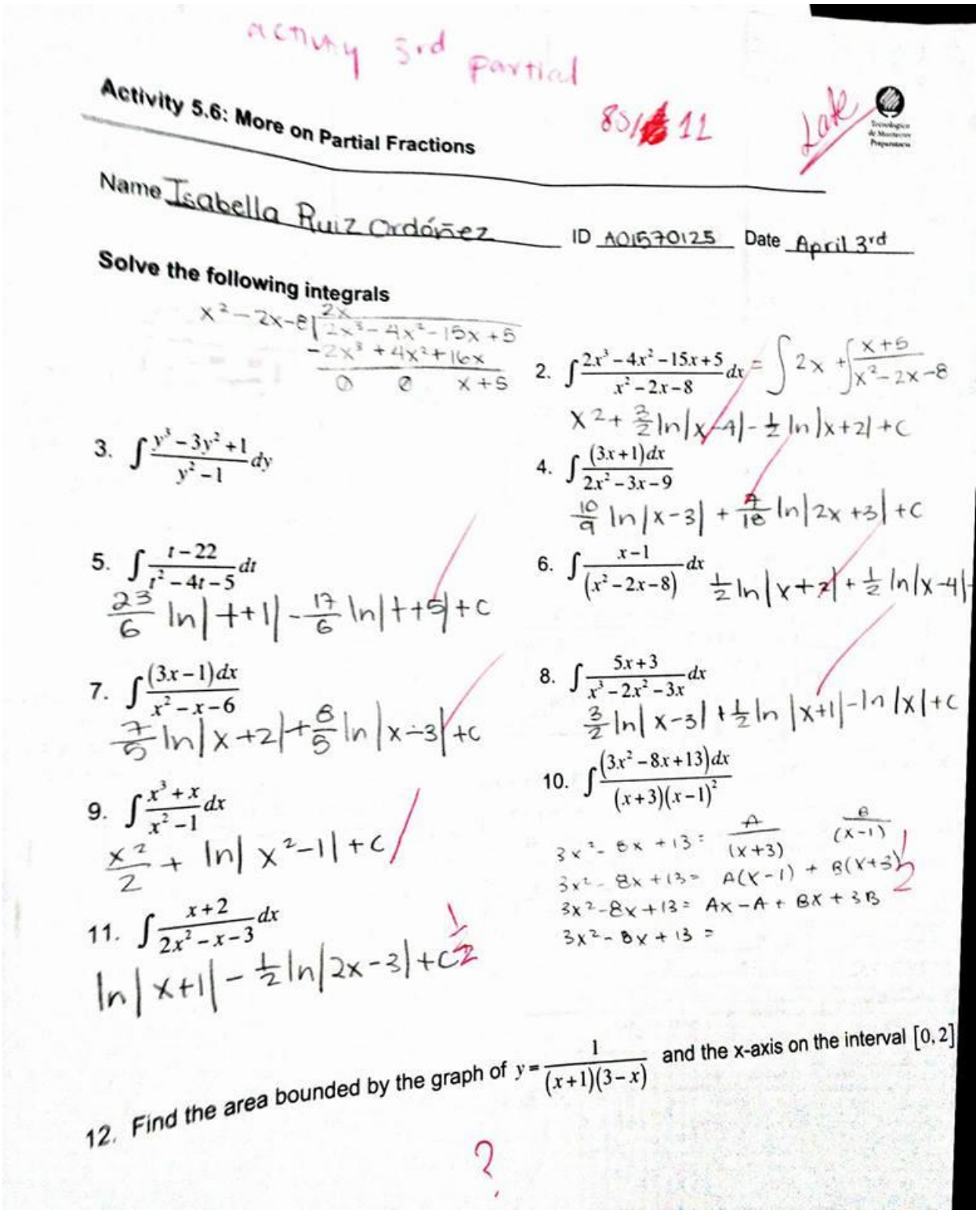
Name Isabella Ruiz Ordóñez ID A00576425 Date 8th March 2018

Area between two graphs	=	Area below f(x)	−	Area below g(x)
$\int_a^b [f(x)-g(x)]dx$		$\int_a^b f(x)dx$		$\int_a^b g(x)dx$



- I chose this activity because it was a topic I kinda liked, even though I'm not good at it at all. I like looking at graphs even though I struggle to understand them.



Activity 5.6: More on Partial Fractions

Name Isabella Ruiz Ordóñez ID A01670125 Date April 3rd

Solve the following integrals

2. $\int \frac{2x^3-4x^2-15x+5}{x^2-2x-8}dx = \int 2x + \int \frac{x+5}{x^2-2x-8}$

$x^2 + \frac{2}{2}\ln|x-4| - \frac{1}{2}\ln|x+2| + C$

3. $\int \frac{y^3-3y^2+1}{y^2-1}dy$

4. $\int \frac{(3x+1)dx}{2x^2-3x-9}$

$\frac{10}{9}\ln|x-3| + \frac{7}{18}\ln|2x+3| + C$

5. $\int \frac{t-22}{t^2-4t-5}dt$

$\frac{23}{6}\ln|t+1| - \frac{17}{6}\ln|t+5| + C$

6. $\int \frac{x-1}{(x^2-2x-8)}dx$ $\frac{1}{2}\ln|x+2| + \frac{1}{2}\ln|x-4|$

7. $\int \frac{(3x-1)dx}{x^2-x-6}$

$\frac{7}{5}\ln|x+2| + \frac{8}{5}\ln|x-3| + C$

8. $\int \frac{5x+3}{x^3-2x^2-3x}dx$

$\frac{3}{2}\ln|x-3| + \frac{1}{2}\ln|x+1| - \ln|x| + C$

9. $\int \frac{x^3+x}{x^2-1}dx$

$\frac{x^2}{2} + \ln|x^2-1| + C$

10. $\int \frac{(3x^2-8x+13)dx}{(x+3)(x-1)^2}$

$3x^2-8x+13 = \frac{A}{(x+3)} \quad \frac{B}{(x-1)}$

$3x^2-8x+13 = A(x-1) + B(x+3)$

$3x^2-8x+13 = Ax - A + Bx + 3B$

$3x^2-8x+13 =$

11. $\int \frac{x+2}{2x^2-x-3}dx$

$\ln|x+1| - \frac{1}{2}\ln|2x-3| + C$

12. Find the area bounded by the graph of $y = \frac{1}{(x+1)(3-x)}$ and the x-axis on the interval $[0,2]$

I chose this activity because it's one of the topics I struggled with the most. As you can see, it was so hard to the point I couldn't even finish the activity and handed it in late.

It's important because it was a hard topic and I'm sure I'll see lots of problems like these on the final.

Conclusion

- I hate math. I always have. I'm a person that learns through watching things work, or imagining them the physical plane of existence. I cannot do this with equations. I don't know what an equation would look like physically, tridimensionally. I cannot touch an equation/function/etc. That makes me very frustrated and angry. I really tried my best to understand everything we saw this semester, but I just couldn't do it. Some kids are good with numbers, and I'm good with letters. That's just how it is. I don't plan to study something related to calculus, but I know that I had to go through calculus anyway because apparently high schools think it's important.
  The only quiz I ever passed was one of the first partial ones. I know it might be hard to believe, but I actually studied for all of them (*every single one*) and managed to fail them all (except that one).
  I've been trying to prepare myself for the final, but honestly, I doubt I'll pass. That's okay. Some people take longer than others to understand things, and I'm one of those people. I know I did all I could so I don't feel bad.
  I do have a complaint, though. It's not about your class in particular, just about school systems in general. Why do schools forcé students to go through subjects they'll never use, and then make them feel like failures when they get bad grades?
  Everyone's different. Schools always say they encourage you to be your own person, but sure don't act like it.