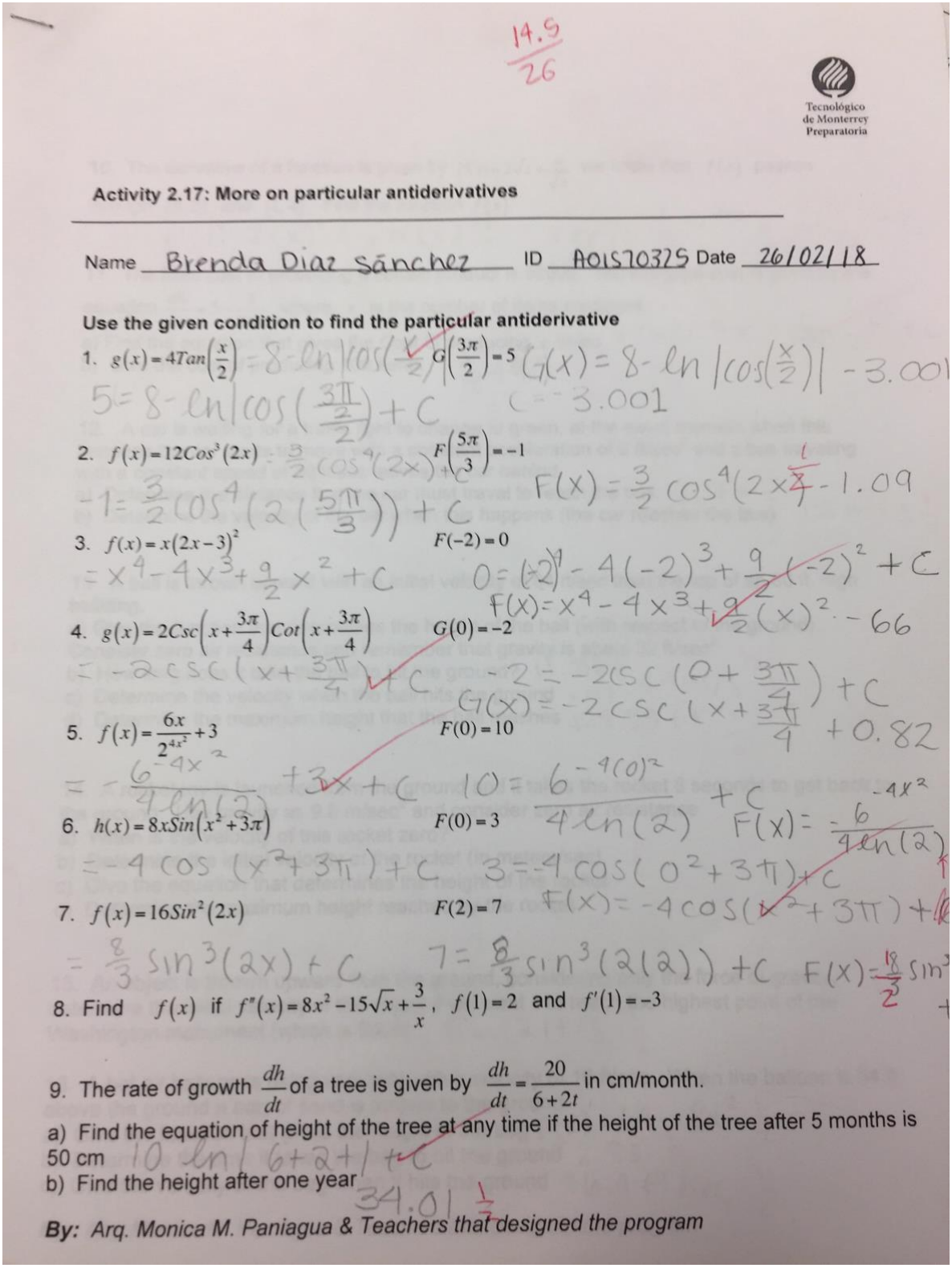
I think that this activity from the second partial is significant because these are special antiderivative cases and I always want to be prepared for everything so these cases can come up some day and I will know how to solve them.



14.5/26

Tecnológico de Monterrey Preparatoria

Activity 2.17: More on particular antiderivatives

Name Brenda Diaz Sánchez ID A01570325 Date 26/02/18

Use the given condition to find the particular antiderivative

1. $g(x)=4Tan\left(\frac{x}{2}\right)$ $G\left(\frac{3\pi}{2}\right)=5$

$8-\ln\left|\cos\left(\frac{x}{2}\right)\right|$ $G(x)=8-\ln\left|\cos\left(\frac{x}{2}\right)\right|-3.001$

$5=8-\ln\left|\cos\left(\frac{3\pi}{2}\right)\right|+C$ $C=-3.001$

2. $f(x)=12Cos^3(2x)$ $F\left(\frac{5\pi}{3}\right)=-1$

$\frac{3}{2}\cos^4(2x)+C$ $F(x)=\frac{3}{2}\cos^4(2x\frac{1}{2})-1.09$

$-1=\frac{3}{2}\cos^4\left(2\left(\frac{5\pi}{3}\right)\right)+C$

3. $f(x)=x(2x-3)^2$ $F(-2)=0$

$=x^4-4x^3+\frac{9}{2}x^2+C$ $0=(-2)^4-4(-2)^3+\frac{9}{2}(-2)^2+C$

$F(x)=x^4-4x^3+\frac{9}{2}(x)^2-66$

4. $g(x)=2Csc\left(x+\frac{3\pi}{4}\right)Cot\left(x+\frac{3\pi}{4}\right)$ $G(0)=-2$

$=-2\csc\left(x+\frac{3\pi}{4}\right)+C$ $-2=-2\csc\left(0+\frac{3\pi}{4}\right)+C$

$G(x)=-2\csc\left(x+\frac{3\pi}{4}\right)+0.82$

5. $f(x)=\frac{6x}{2^{4x^2}}+3$ $F(0)=10$

$=-\frac{6^{-4x^2}}{4\ln(2)}+3x+C$ $10=\frac{6^{-4(0)^2}}{4\ln(2)}+C$

$F(x)=\frac{-6^{-4x^2}}{4\ln(2)}$

6. $h(x)=8xSin\left(x^2+3\pi\right)$ $F(0)=3$

$=-4\cos\left(x^2+3\pi\right)+C$ $3=-4\cos(0^2+3\pi)+C$

$F(x)=-4\cos(x^2+3\pi)+$

7. $f(x)=16Sin^2(2x)$ $F(2)=7$

$=\frac{8}{3}\sin^3(2x)+C$ $7=\frac{8}{3}\sin^3(2(2))+C$ $F(x)=\frac{18}{2}\sin^3$

8. Find $f(x)$ if $f''(x)=8x^2-15\sqrt{x}+\frac{3}{x}$, $f(1)=2$ and $f'(1)=-3$

9. The rate of growth $\frac{dh}{dt}$ of a tree is given by $\frac{dh}{dt}=\frac{20}{6+2t}$ in cm/month.

a) Find the equation of height of the tree at any time if the height of the tree after 5 months is 50 cm $10\ln|6+2t|+C$

b) Find the height after one year $34.01\frac{1}{2}$

***By:** Arq. Monica M. Paniagua & Teachers that designed the program*