

#6

Subject: AP Calculus (Mr. Soomalan)	Name: Consalves, Tessa
Standard/Essential Question: How do I evaluate each indefinite integral with logs involved?	Teacher: Mr. Petty
	Class/period: Period 1
	Date: 1/23/20

Pre-Work Inquiry	Resources	Collaborative Inquiry	Note-Taking	Reflection	Total
12/12	1/1	2/12	3/13	7/17	25/25 AP

Tutorial Grades are to be given to the Teacher on a Spreadsheet by Tutors.

Initial/Original Question: Evaluate the indefinite integral: $\int 6x \tan(x^2 + 4) dx$ 1/1

Key Academic Vocabulary/ Definition Associated with Topic/Question

- indefinite integral: an integral without upper and lower limits
- u substitution: integration by substitution \rightarrow a method for solving integrals 2/2

What I Know About My Question:

- ① I know that I will have to use a substitution
- ② I know that I will have to work backwards to solve 2/2

Critical Thinking About My Initial Question:

$$\int 6x \tan(x^2 + 4) \quad u = x^2 + 4$$

$$du = 2x$$

$$3 \int 2x \sec^2(x^2 + 4)$$

$$6x \sec^2(x^2 + 4)$$

Correct Answer: $3 \ln|\sec(x^2 + 4)| + C$ 3/13

Identify the General Process and Steps:

- ① Write problem
- ② Identify u and du
- ③ Fabricate numbers and terms to determine integral 2/2
- ④ Simplify

Question from Point of Confusion:

How do I get the correct integral? What is the correct way to solve using the product rule? 2/2

Reflection:

My point of confusion was... My point of confusion was, "How

Subject: AP Calculus (Mr. Soomalan) Name: Gonsalves, Tessa
 Standard/Essential Question: How do I solve differential equations and find the value of c? Teacher: Mr. Petty
 Class/period: Period 1 Date: 1/30/2020

Pre-Work Inquiry	Resources	Collaborative Inquiry	Note-Taking	Reflection	Total
12/12	1/1	2/12	3/13	7/17	25/25 <i>Alina</i>

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Initial/Original Question: $\frac{dy}{dx} = (3-y) \cos x$, $y = f(x)$, $f(0) = 1$ 1/1

Key Academic Vocabulary/ Definition Associated with Topic/Question:
 Differential equation - equation relating to one or more functions and their derivatives
 Substitution - putting numbers where letters are in equation 2/2

What I Know About My Question:
 ① I know that I need to get y by itself and solve for c.
 ② I know that I will substitute c value back into the function. 2

Critical Thinking About My Initial Question:	Identify the General Process and Steps:
$\frac{dy}{dx} = (3-y) \cos x \quad f(0) = 1$ $\frac{dx \cdot dy}{dx} = \frac{(3-y) \cos x \cdot dx}{(3-y)}$ $\int \frac{dy}{(3-y)} = \int \cos x \cdot dx$ $\hookrightarrow \ln 3-y = -\sin x + C$ $\ln 3-1 = -\sin 0 + C$ $\ln 2 \rightarrow \ln 2 = C \quad 3/13$	<ol style="list-style-type: none"> Write problem and condition Divide by 3-y and multiply by dx 2/12 Simplify Integrate Find C

Question from Point of Confusion: After solving for the value of c, how do I use this value when solving for y and getting the final answer? 2/12

Reflection: My point of confusion was... My point of confusion was,

Subject: AP Calculus (Mr. Soomalan) Name: Consalves, Tessa
 Standard/Essential Question: How do I find an equation for the derivative of a given function? Teacher: Mr. Petty
 Class/period: Period 1 Date: 1/14/2020

Pre-Work Inquiry	Resources	Collaborative Inquiry	Note-Taking	Reflection	Total
12 / 12	1 / 1	2 / 12	3 / 13	7 / 17	25 / 25

Tutorial Grades are to be given to the Teacher on a Spreadsheet by Tutors.

Initial/Original Question: Find an equation for the derivative of the given function: $y = (\cos 2x)^{3x}$

Key Academic Vocabulary/ Definition Associated with Topic/Question:
 natural log - logarithm to the base of mathematical constant e
 chain rule - formula to find the derivative of a composite function

What I Know About My Question:
 ① I know that I will need to add ln before $(\cos 2x)$.
 ② I know that I will need to take the derivative of $(\cos 2x)$.

Critical Thinking About My Initial Question	Identify the General Process and Steps
$y = (\cos 2x)^{3x}$ $y' = 3 \ln (\cos 2x)^{3x}$ $y' = \frac{3}{(\cos 2x)^{3x}} \leftarrow \ln' = \frac{1}{x}$	<ol style="list-style-type: none"> Write problem Move 3 from 3x to the front of ln Note the property for the derivative of ln Apply derivative property

Question from Point of Confusion: To solve the problem, would I use the chain rule or the product rule? How do I simplify the answer correctly?

Reflection:
 My point of confusion was... My point of confusion was, "Do I"