CENGAGE | WEBASSIGN

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5.3 Teorema Fundamental del Cálculo (Homework)

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Current Score

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14
POINTS	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/0	1/1	1/1	1/0

TOTAL SCORE

14/12 116.7%

Due Date

DECEMBER 21
11:59 PM CST

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Assignment Submission

For this assignment, you submit answers by question parts. The number of submissions remaining for each question part only changes if you submit or change the answer.

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1. **1/1 points** **Previous Answers** **SCalcET8 5.3.007.** **My Notes** **Ask Your Teacher**

Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of the function.

$$g(x) = \int_0^x \sqrt{t^4 + t^6}\, dt$$

$g'(x) =$

√x4+x6·1

2. 1/1 points Previous Answers SCalcET8 5.3.011. My Notes Ask Your Teacher

Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of the function.

$$F(x) = \int_x^0 \sqrt{2 + \sec(8t)}\, dt \quad \left[\text{Hint: } \int_x^0 \sqrt{2 + \sec(8t)}\, dt = -\int_0^x \sqrt{2 + \sec(8t)}\, dt \right]$$

$F'(x) =$

$-\sqrt{2+sec(8x)\cdot 1}$

3. 1/1 points Previous Answers SCalcET8 5.3.013. My Notes Ask Your Teacher

Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of the function.

$$h(x) = \int_1^{e^x} 5 \ln(t)\, dt$$

$h'(x) =$

$5\cdot x\cdot ex$

4. 1/1 points Previous Answers SCalcET8 5.3.061. My Notes Ask Your Teacher

Find the derivative of the function.

$$F(x) = \int_x^{x^2} e^{t^4}\,dt$$

$F'(x) =$

$ex8\cdot 2x - ex4\cdot 1$

5. 1/1 points Previous Answers SCalcET8 5.3.063. My Notes Ask Your Teacher

Find the derivative of the function.

$$y = \int_{\cos(x)}^{\sin(x)} \ln(1 + 7v)\,dv$$

$y'(x) =$

$ln(1+7sin(x))cos(x)+ln(1+7cos(x))\cdot sin(x)$

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6. 1/1 points Previous Answers SCalcET8 5.3.505.XP. My Notes Ask Your Teacher

Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of the function.

$$y = \int_9^{\tan(x)} \sqrt{2t + \sqrt{t}}\, dt$$

$y' =$

$\sqrt{2(tan(x))+\sqrt{tan(x)}\cdot sec2(x)}$

7. 1/1 points Previous Answers SCalcET8 5.3.019. My Notes Ask Your Teacher

Evaluate the integral.

$$\int_4^6 (x^2 + 2x - 7)\, dx$$

1703

8. 1/1 points Previous Answers SCalcET8 5.3.023. My Notes Ask Your Teacher

Evaluate the integral.

$$\int_4^9 \sqrt{x}\, dx$$

383

9. 1/1 points Previous Answers SCalcET8 5.3.029. My Notes Ask Your Teacher

Evaluate the integral.

$$\int_1^9 \frac{2 + x^2}{\sqrt{x}}\, dx$$

104.8

10. 1/1 points Previous Answers SCalcET8 5.3.035. My Notes Ask Your Teacher

Evaluate the integral.

$$\int_1^2 \frac{v^3 + 4v^5}{v^2}\, dv$$

332

11. 1/0 points Previous Answers SCalcET8 5.3.039. My Notes Ask Your Teacher

Evaluate the integral.

$$\int_{1/\sqrt{3}}^{\sqrt{3}} \frac{7}{1 + x^2}\, dx$$

7π6

12. 1/1 points Previous Answers SCalcET8 5.3.044. My Notes Ask Your Teacher

Evaluate the integral.

$$\int_{-4}^{4} f(x)\, dx \text{ where } f(x) = \begin{cases} 3 & \text{if } -4 \le x \le 0 \\ 6 - x^2 & \text{if } 0 < x \le 4 \end{cases}$$

44/3

13. 1/1 points Previous Answers SCalcET8 5.3.055. My Notes Ask Your Teacher

What is wrong with the equation?

$$\int_{-2}^{4} x^{-3}\,dx = \frac{x^{-2}}{-2}\Big]_{-2}^{4} = \frac{3}{32}$$

- $f(x) = x^{-3}$ is not continuous on the interval $[-2, 4]$ so FTC2 cannot be applied.
- $f(x) = x^{-3}$ is not continuous at $x = -2$, so FTC2 cannot be applied.
- There is nothing wrong with the equation.
- The lower limit is less than 0, so FTC2 cannot be applied.
- $f(x) = x^{-3}$ is continuous on the interval $[-2, 4]$ so FTC2 cannot be applied.

14. 1/0 points Previous Answers SCalcET8 5.3.059. My Notes Ask Your Teacher

Find the derivative of the function.

$$g(x) = \int_{4x}^{7x} \frac{u^2 - 3}{u^2 + 3}\,du \qquad \left[\text{Hint: } \int_{4x}^{7x} f(u)\,du = \int_{4x}^{0} f(u)\,du + \int_{0}^{7x} f(u)\,du\right]$$

$g'(x) =$

49x2−349x2+3·7−16x2−316x2+3·4

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