

DIGITLE – AB CALCULUS

Puzzle 119 – Integration - u - Substitution

Directions: The first 5 problems have single digit answers. The 6th problem has a 5-digit answer (counting leading zeros if present). You have a choice: solve the easier single-digit answer problems or tackle the more difficult 5-digit answer. Once you have done that, attempt to solve the puzzle by entering the following url on your computer, tablet, or phone:

<https://mastermathmentor.com/mmm/digitle.ashx>.

The correct puzzle answer will be the digits of your answer(s) scrambled. Use the following interpretation. You get 6 tries.



Green : the digit is in the answer and is in the correct spot.

Yellow: the digit is in the answer but is not in the correct spot.

Grey : the digit is not in the answer.

Single Digit Answers:

1) If $f(x) = \int \frac{x}{\sqrt{x^2 + 9}} dx$ and $f(0) = 0$, find $f(4)$.

2) If $f'(x) = \frac{16(x+1)}{x^4 + 4x^3 + 4x^2}$ and $f(2) = -1$, find $f(-1)$.

3) If $f(x) = \int \frac{\ln x}{x} dx$ and $f(1) = \frac{9}{2}$, find $f(e)$

4) If $f(x) = -8 \int \sin x \cos x dx$ and $f\left(\frac{\pi}{6}\right) = 2$, find $f\left(\frac{\pi}{4}\right)$

5) If $f'(x) = e^x + e^{-x} + 1$, $f(0) = \frac{1}{2}$, find $f(1) + f(-1)$.

5-Digit Answer:

6) If $f'(x) = 5(x+8)\sqrt{x-4}$ and $f(5) = 50$, find $f(29)$.