

DIGITLE – AB CALCULUS

Puzzle 118 – Indefinite Integration

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 $F(x) = \int (6x^2 - 4x - 1) dx$ and $F(1) = 0$, find $F(2)$.

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

3) If $f'(x) = 3e^x - 6ex$, $f(1) = 2$, find $f(0)$

4) If $f(x) = \int -4 \frac{\sin x}{\cos^2 x} dx$ and $f(0) = -7$, find $f(\pi)$

5) If $f''(x) = -2x$, $f'(6) = -33$, and $f(6) = -53$, find $f(3) - f(-3)$

5-Digit Answer:

6) What is the vertical difference between the absolute maximum and absolute minimum values of $\int (x^4 - 9x^2 - 400) dx$ on $[-6, 10]$?