

DIGITLE – AB CALCULUS

Puzzle 127 – Inverse Trig

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 $f(x) = \sin^{-1}(3x) - \cos^{-1}(3x)$, find $f'(0)$.

2) If $f(x) = 6[\sin(\cos^{-1} x) + \cos(\sin^{-1} x)]$, find $f'\left(\frac{-3}{5}\right)$

3) $\int_0^{1/4} \frac{2}{\sqrt{1-4x^2}} dx$ can be expressed as $\frac{\pi}{k}$. Find k .

4) Find the value of $\pi \int_0^1 \frac{\tan^{-1} x}{1+x^2} dx$ to the closest integer.

5) $\frac{1}{\pi} \int_{-4}^0 \frac{8}{x^2 + 4x + 8} dx =$

5-Digit Answer:

6) $\int_{1/2}^{\sqrt{3}/2} \frac{1}{1234 + 4936x^2} dx$ can be expressed as $\frac{\pi}{k}$. Find k .