

DIGITLE – AB CALCULUS

Puzzle 999 – Sample

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) (SAT's) The ratio of $m:k$ is 1:4. The ratio of $n:k$ is 2:3. If the ratio of $m:n$ is calculated, what positive integer less than 10 can represent n ?
- 2) (STAT). A company requires testing of its employees monthly for COVID. The average number of COVID tests an employee had in a month was 3.15 with a standard deviation of 1.06. If the distribution of testing is normal, the top 20% of employees in terms of testing have had at least how many tests (nearest integer)?
- 3) (Trig) The equation $2\sin^2 x + \sin x = 1$ has how many solutions on $[0, \pi]$?
- 4) (Precalc). Solve for x . $\log_3(8x - 5) = 3$
- 5) (BC Calc) Find $\lim_{x \rightarrow 0^+} x \ln x$.

5-Digit Answer:

- 6) (AB Calculus): A rectangle's sides are changing. If its length is increasing at the rate of 5 inches per second while its width is increasing at the rate of 4 inches per second. When the length is 8 feet and width is 7 feet, how fast is its area changing measured in inches² per minute?