DIGITLE – AB CALCULUS
Puzzle 128 – Area Between Curves

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.

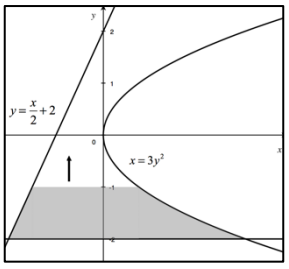
Single Digit Answers:

1) Find the area bounded by the graphs of $y = 16(x-1)^3$ and $y = 16(x-1)$.

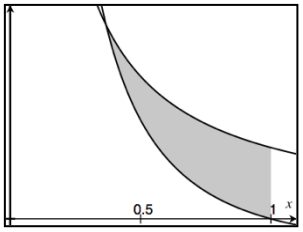
2) Find the area bounded by the graphs of $y = \frac{6}{x^2}, x = 1, y = 0, x = 6$.

3) Find the fourth quadrant region bounded by the curves $y = 2xe^{x^2}$ and $y = 2ex$.

4) Given the curves as shown in the figure to the right, the shaded area is found with $y = -2$ at the bottom and the line $y = k$ at the top. What is the absolute value of k if the area is 20?



5) The figure to the right shows the graphs of $y = \frac{2}{x}$ and $y = \frac{-2\ln x}{x}$. Find the area of the shaded region.



5-Digit Answer:

6) (Calculator – 2 decimal places) The graphs of $y = 4900 - x^2$ and $y = 4900e^{-0.02x}$ are shown in the figure to the right on the interval [0, 100]. Find the area of the shaded region.