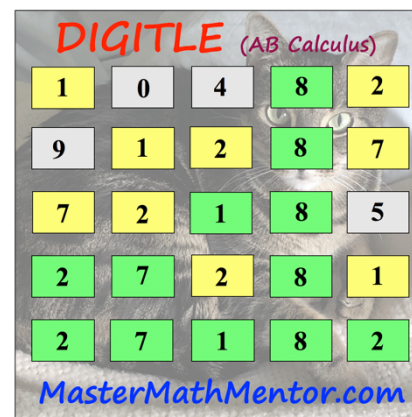


DIGITLE – AB CALCULUS

Puzzle 105 – Chain Rule



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.

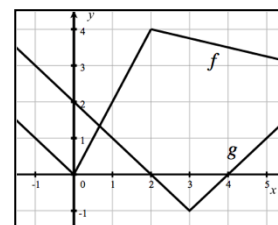
Green : the digit is in the answer and is in the correct spot.
Yellow: the digit is in the answer but is not in the correct spot.

Grey : the digit is not in the answer.

Single Digit Answers:

1. If $f(x) = \frac{-7}{(6-4x)^2}$, find $f'(2)$.

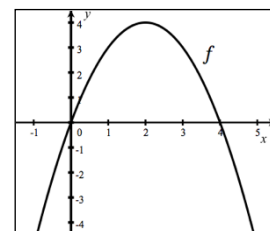
2) In the figure to the right, the functions f and g are graphed. If $h(x) = -f(g(x))$, what is the value of $h'(1)$?



3) Let $f(x) = \sqrt{x^2 + 3x + 1} + \left(\frac{1}{2}x - 2\right)^2$. If the tangent line to f at its y -intercept is given by l , what is the value of l when $x = 8$?

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

5) If f is the function shown in the figure to the right and $g(x) = f(x^2 + x - 28)$ with $x \geq 0$, for what value of x is $g'(x) = 0$?



5-Digit Answer:

6) If $h(x) = x \left[f(g(x)) \right]^3$, use the chart below to find $h'(4)$.

	f	g	f'	g'
4	-1	-4	6	9
-4	5	-2	8	7