

Too Gross

The answer is 288 (two gross), no matter which four functions are chosen.

Here are the answers to the sixteen derivative problems:

If $f(x) = 2x^3$, $f'(-3) = 54$

If $f(x) = 2x^2$, $f'(5) = 20$

If $f(x) = \frac{-1}{x}$, $f'\left(\frac{1}{8}\right) = 64$

If $f(x) = 100\sqrt{x}$, $f'(4) = 25$

If $f(x) = \frac{x^6 + 3x^2}{6}$, $f'(2) = 34$

If $f(x) = \pi^3$, $f'(7) = 0$

If $f(x) = \frac{-176x}{(1+x^2)^2}$, $f'(1) = 44$

If $f(x) = 40\left(\frac{x}{x+1}\right)^4$, $f'(1) = 5$

If $f(x) = 119x$, $f'(13) = 119$

If $f(x) = x^4 - x^3 + x^2 - 2x$, $f'(3) = 85$

If $f(x) = \frac{-129}{x+3}$, $f'(-2) = 129$

If $f(x) = 10(x+1)^9$, $f'(0) = 90$

If $f(x) = x^2$, $f'(67) = 134$

If $f(x) = \frac{2(2x+1)^3}{3}$, $f'(2) = 100$

If $f(x) = 24(x^4 - x^2)(2x^3 + x)$, $f'(1) = 144$ If $f(x) = 70x^2\sqrt{2-x}$, $f'(1) = 105$

How does it work?

The table is really just an addition table.

The restriction in picking the four derivatives to evaluate forces the student to choose exactly one number from each row and column.

So, the sum of the four numbers is really the sum of the 8 numbers of the addition table (the red numbers in the row and column headings below).

The sum of $34 + 0 + 44 + 5 + 20 + 0 + 85 + 100 = 288$.

+	34	0	44	5
20	54	20	64	25
0	34	0	44	5
85	119	85	129	90
100	134	100	144	105