

**Too Gross!**  
Addition Trick with Derivatives

Pick four functions from the sixteen functions below so that no two functions are in the same row or column.

Then evaluate the derivatives of the functions at the point indicated, find the sum, and you will find a number that is just too gross!

$f(x) = 2x^3$ at $x = -3$	$f(x) = 2x^2$ at $x = 5$	$f(x) = \frac{-1}{x}$ at $x = \frac{1}{8}$	$f(x) = 100\sqrt{x}$ at $x = 4$
$f(x) = \frac{x^6 + 3x^2}{6}$ at $x = 2$	$f(x) = \pi^3$ at $x = 7$	$f(x) = \frac{-176x}{(1+x^2)^2}$ at $x = 1$	$f(x) = 40\left(\frac{x}{x+1}\right)^4$ at $x = 1$
$f(x) = 119x$ at $x = 13$	$f(x) = x^4 - x^3 + x^2 - 2x$ at $x = 3$	$f(x) = \frac{-129}{x+3}$ at $x = -2$	$f(x) = 10(x+1)^9$ at $x = 0$
$f(x) = x^2$ at $x = 67$	$f(x) = \frac{2(2x+1)^3}{3}$ at $x = 2$	$f(x) = 24(x^4 - x^2)(2x^3 + x)$ at $x = 1$	$f(x) = 70x^2\sqrt{2-x}$ at $x = 1$

Now, go back and evaluate the other twelve derivatives. Can you explain why this “trick” always works, no matter which four functions you choose?

[Click here for answers](#)