

# ANTIDERIVATIVES

Name Key  
Pd. \_\_\_\_\_

In column two you see the graph of the derivative of some function. For each, sketch a graph of the second derivative in column one and a possible graph of the original function (antiderivative) in column three.

$f''(x)$	$f'(x)$	$f(x)$	
1.			$f(x) = x + C$ $f'(x) = 1$ $f''(x) = 0$
2.			$f' \quad \begin{array}{cccc} - & - & 0 & + & + & + \\ \hline & & 1 & & & \end{array}$ $f'' \quad \begin{array}{cccc} + & + & + & + \\ \hline & & & \end{array}$
3.			$f' \quad \begin{array}{cccc} + & 0 & - & - & 0 & + \\ \hline & & -2.5 & & 0.5 & \end{array}$ $f'' \quad \begin{array}{cccc} - & - & 0 & + & + \\ \hline & & -1 & & \end{array}$
4.			$f' \quad \begin{array}{cccc} - & - & 0 & + & + & 0 & - & - \\ \hline & & -1 & & & 3 & & \end{array}$ $f'' \quad \begin{array}{cccc} + & + & + & 0 & - & - & - \\ \hline & & & 1 & & \end{array}$
5.			$f' \quad \begin{array}{cccc} - & - & 0 & + & 0 & - & 0 & + & + \\ \hline & & -2 & & 0 & & 2 & & \end{array}$ $f'' \quad \begin{array}{cccc} + & + & 0 & - & - & 0 & + & + \\ \hline & & -1 & & & 1 & & \end{array}$

# Antiderivatives Activity p.2

	$f''(x)$	$f'(x)$	$f(x)$	
6.				$f' \begin{array}{c} - - \text{DNE} + + + \\ -1 \\ - - \text{DNE} - - - \\ -1 \end{array}$
7.				$f' \begin{array}{c} + 0 + + 0 - - 0 + \\ -3 \quad 0 \quad 3 \\ - - 0 + 0 - - 0 + + \\ -3 \quad -1 \quad 2 \end{array}$
8.				
9.				$f' \begin{array}{c} - 0 + + \text{DNE} + + + \\ 0 \quad 1 \\ + + \text{DNE} + + + \\ 1 \end{array}$
10.				$f(x) = -\cos x$ $f'(x) = \sin x$ $f''(x) = \cos x$
11.				$f(x) = e^x$ $f'(x) = e^x$ $f''(x) = e^x$