

# AP Calculus – Across and Down

Clue Set: #6

## Topic: Derivatives – Transcendentals

Only digits (0 – 9) and negative signs are allowed. If an answer is an integer, use leading zeros to make the answer fit. (Ex: If 4 digits are required and your answer is 46, enter 0046.) If an answer has decimal places, the decimal point is dropped and trailing zeros are used to make the answer fit to the required number of decimal places which is specified in the problem. (Ex: If 2 decimal places are required and your answer is 12.4682, round to 12.47 and enter 1247. If one decimal place is required and your answer is 15, write 15.0 and enter 150. If one decimal place is required and your answer is 0.5, write 05.)



### Across

A3. (Sci. Calc.) If  $f(x) = -\pi x \ln[x^2 + \sin(\pi x)]$ , find  $f'(8)$  to the nearest integer.

A13. (Sci. Calc.) Find the slope of the tangent line to  $y = \frac{292}{3} e^{\sin^3 x}$  at  $x = 1$  to the nearest whole number.

A53. (Sci. Calc.) If  $x = \ln(2y + 1)$ , find  $\frac{dy}{dx}$  at  $x = 3.706$ , accurate to 3 decimal places.

A63. (Sci. Calc.) If  $f(x) = \frac{5x + 6e}{5 \ln x}$ , find  $f'(\sqrt{e})$ , accurate to one decimal place.

A71. (Sci. Calc.) If  $f(x) = \ln(e^{5x} - 6)$ , find  $f'(0.793)$  (3 decimal places)

### Down

D35. Using the table to the right, find  $g''(1)$  if  $g(x) = e^{f(x)}$ .

$x$	$f(x)$	$f'(x)$	$f''(x)$
1	$\ln 3$	4	-25