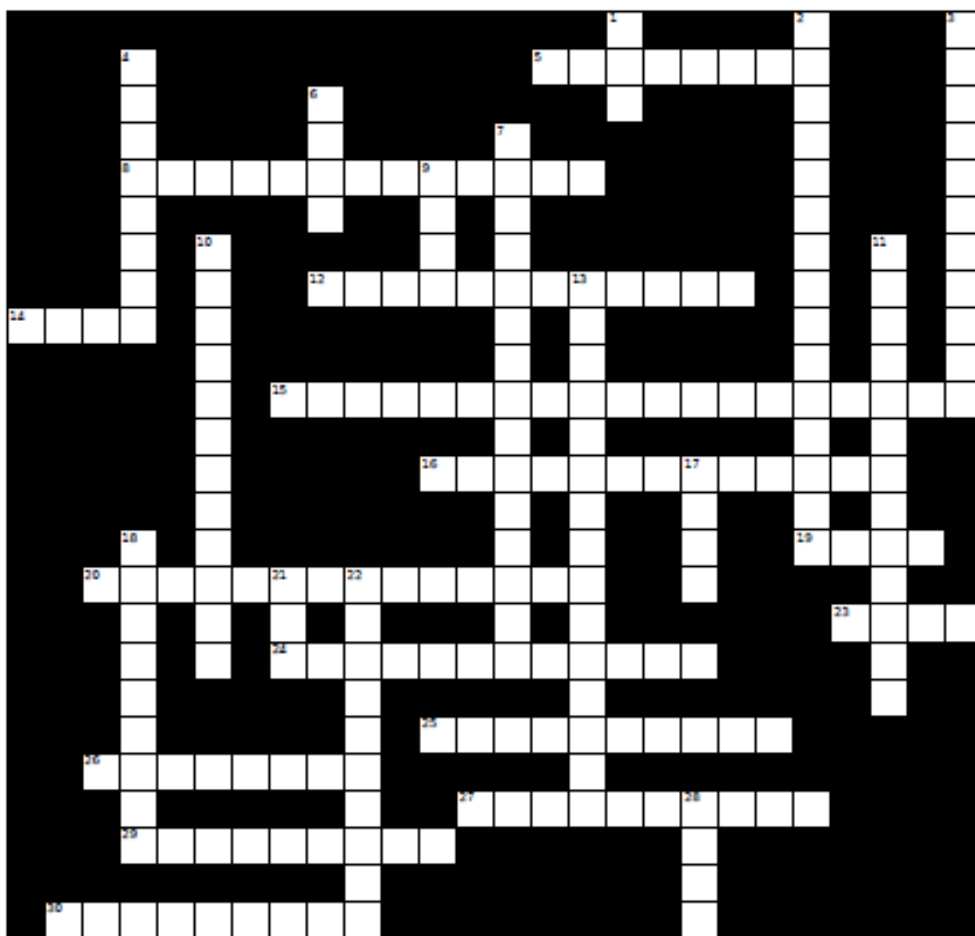


## A Crossword Puzzle: Calculus Style



### Across

5 A rule that assigns each element in the domain to a unique element in the range

8  $L(x) = f(a) + f'(a)(x - a)$

12 An equation involving 2 or more variables that are differentiable functions of time,  $t$ , that can be used to find an equation that relates the rates

14 The equation for compounding interest continuously

15 If  $\lim_{x \rightarrow \infty} f(x) = c$ , then  $c$  is a \_\_\_\_\_.

16 A point in the domain where  $f'(x) = 0$  or undefined

19  $\tan(x) \cdot \ln(e) = \underline{\hspace{2cm}}$

20 A line parallel to the  $x$ -axis

23 The integral of  $\cos(x)$  from 0 to  $t$  is \_\_\_\_\_.

24 A function  $f$  for which  $f(-x) = f(x)$

25 When  $f'$  is negative,  $f$  is \_\_\_\_\_.

26 Rate of change of position with respect to time

27 Derivative of  $48x^2$

29 Function defined by applying different formulas to different parts of its domain

30  $f'(c) = \frac{f(b) - f(a)}{b - a}$  is the premise for the \_\_\_\_\_ theorem.

### Down

1 Antiderivative of  $\frac{1}{x}$ , for  $x > 0$

2 A point where  $f''(x) = 0$  and changes signs

3  $(f(x)g(x))' = f'(x)g(x) + g'(x)f(x)$

4 Process of finding  $dy/dx$ , when  $y$  is in equation

6 Derivative of acceleration

7 Process of taking a derivative

9 The integral of a function is the \_\_\_\_\_ under the curve.

10 Method of integrating complex functions in which you replace part of the function with  $u$  is called  $u$  \_\_\_\_\_.

11 If a function is not continuous at point  $c$ , then  $c$  is a point of \_\_\_\_\_ of  $f$ .

13 Maximum or minimum that is not an absolute extreme

17 Left-hand endpoint rectangular approximation

18 If the second derivative is positive, then the graph is \_\_\_\_\_.

21  $\lim_{x \rightarrow 0} \frac{\sin x}{x} = \underline{\hspace{2cm}}$

22  $\lim_{x \rightarrow 0} (5x + 25) = \underline{\hspace{2cm}}$

28  $f(x) = \int_{\pi}^x \sin(t) dt$ . Find  $f'(x)$ .