Lecture Ten Practice

Practice problems for Lecture Ten

Abstract. *Practice problems for Lecture Ten Content*

Problem. 1 : Compute the following derivative:

$$\frac{d}{dx}\left(15\sin(-\pi x)\tan\left(\frac{2}{3}\pi x\right)\right) = \boxed{}\ ?$$

Problem. 2 : Compute the following derivative:

$$\frac{d}{dx}\left(-15\sin\left(\frac{5}{2}\pi x\right)\sin\left(\frac{1}{3}\pi x\right)\right) = \boxed{}\ ?$$

Problem. 3 : Compute the following derivative:

$$\frac{d}{dx}\left(-e^{(3x-4)}\right) = \boxed{}\ ?$$

Problem. 4 : Compute the following derivative:

$$\frac{d}{dx}\left(2e^{(-2x+3)}\right) = \boxed{}\ ?$$

Problem. 5 : Compute the following derivative:

$$\frac{d}{dx}(-2\cos(\sqrt{x})) = \boxed{}\ ?$$

Problem. 6 : Find the equation of the line tangent to $f(x) = -3\cos(x)$ at $x = \frac{3}{4}\pi$.

$$y = \boxed{}\ ?$$

Problem. 7 : Find the equation of the line tangent to $f(x) = 2\sin(x)$ at $x = \frac{3}{4}\pi$.

$$y = \boxed{}\ ?$$

Problem. 8 : Compute the first and second derivatives for the function $f(x) = 9\sin(-3x)$.

$$f'(x) = \boxed{}\ ?$$

$$f''(x) = \boxed{}\ ?$$

Problem. 9 : Compute the first and second derivatives for the function $f(x) = 3\sin(-5x)$.

$$f'(x) = \boxed{}\ ?$$

$f''(x) =$?

Problem. 10 : Compute the first and second derivatives for the function $f(x) = \cos(\frac{1}{x})$.

$f'(x) =$?

$f''(x) =$?

Problem. 11 : Compute the first and second derivatives for the function $f(x) = e^{\cos(x)}$.

$f'(x) =$?

$f''(x) =$?

Problem. 12 : Find $f'(x)$ when $f(x) = \tan(\sec x)$;

$f'(x) =$?

Problem. 13 : Find $f'(x)$ when $f(x) = \csc(e^{2x})$; $f'(x) =$?

Problem. 14 : Find $f'(x)$ when $f(x) = 4^{\sin^2(x)+\cos(3x)}$;

$f'(x) =$?

Problem. 15 : Compute the derivative.

$$\frac{d}{dx}(\sqrt{10x-5}) =$$?

Problem. 16 : Compute the derivative.

$$\frac{d}{dx}(\sqrt{4x}) =$$?