



## Lecture Nine Practice

Practice problems for  
Lecture Nine Content

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**Abstract.** *Practice problems for Lecture Nine Content*

**Problem. 1 :** Compute the following derivative:

$$\frac{d}{dx} \left( -\frac{\sin(x)}{\cos(x)} \right) = \boxed{?}$$

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

$$y = \boxed{?}$$

**Problem. 3 :** Compute the first and second derivatives for the function

$$f(x) = -3 \cos(x) + 2 \sin(x).$$

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

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

**Problem. 4 :** find derivative of  $f(x) = \frac{x - \cos x}{x^2 + \cot x}$

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

**Problem. 5 :** find derivative of  $f(x) = \frac{x^2 + \sec x}{x - 2e^x}$

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

**Problem. 6 :** Find derivative of  $f(x) = (\sin x + 2\tan x)(\sec x - 3\csc x)$

$f'(x) =$		?
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**Problem. 7:** Compute the following derivative:

$$\frac{d}{dx}(8 \csc(x) + 2) =$$