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1. (1 pt) If  $f(x) = \cos x - 3 \tan x$ , then  
 $f'(x) =$

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and  $f'(1) =$

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2. (1 pt) If

$$f(x) = \frac{4 \sin x}{2 + \cos x}$$

find  $f'(x)$ .

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Find  $f'(4)$ .

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3. (1 pt) If

$$f(x) = \frac{\tan x - 5}{\sec x}$$

find  $f'(x)$ .

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Find  $f'(3)$ .

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4. (1 pt) If  $f(x) = 3x(\sin x + \cos x)$ , find  $f'(x)$ .

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Find  $f'(5)$ .

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5. (1 pt)

Find the equation of the tangent line to the curve  $y = 2 \sin x$  at the point  $(\pi/6, 1)$ .

The equation of this tangent line can be written in the form  $y = mx + b$  where

$m =$  \_\_\_\_\_

and  $b =$  \_\_\_\_\_

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6. (1 pt)

Find the equation of the tangent line to the curve  $y = 2x \cos x$  at the point  $(\pi, -2\pi)$ .

The equation of this tangent line can be written in the form  $y = mx + b$  where

$m =$  \_\_\_\_\_

and  $b =$  \_\_\_\_\_

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