

1. In this problem $y = xe^x + x^2$.

(a) $\frac{dy}{dx} =$

(b) $\frac{d^2y}{dx^2} =$

2. Find the derivative of $y = \cot(3x^2 + x)$.

3. Find the derivative of $y = x^2 \cos(\pi x)$.

4. Information about functions $f(x)$, $f'(x)$, $g(x)$ and $g'(x)$ is tabulated below. Let $h(x) = f(g(x))$.

(a) $h(2) =$

(b) $h'(2) =$

x	0	1	2	3	4	5
$f(x)$	-4	-2	0	1	1	3
$f'(x)$	2	1	1	3	5	-1
$g(x)$	8	9	5	4	0	-4
$g'(x)$	0	-1	-1	-3	-4	-4

(c) Find the **equation** of the tangent line to $y = h(x)$ at $(2, h(2))$.

Name: _____

1. In this problem $y = 3x^2 + \cos(5x)$.

(a) $\frac{dy}{dx} =$

(b) $\frac{d^2y}{dx^2} =$

2. Find the derivative of $y = \frac{\tan(\pi x)}{x}$.

3. Find the derivative of $y = \sin(3x^2 + x)$.

4. Information about functions $f(x)$, $f'(x)$, $g(x)$ and $g'(x)$ is tabulated below. Let $h(x) = f(g(x))$.

(a) $h(3) =$

x	0	1	2	3	4	5
$f(x)$	-4	-2	0	1	1	3
$f'(x)$	2	1	1	3	5	-1
$g(x)$	8	9	5	4	0	-4
$g'(x)$	0	-1	-1	-3	-4	-4

(b) $h'(3) =$

(c) Find the **equation** of the tangent line to $y = h(x)$ at $(3, h(3))$.