

Name _____

Homework 9
Sections 3.4 & 3.5

1. (3) Find $g'(1)$ for $g(x) = 3x(6x^2 - 3x)^5$.

2. (4) Find the *second* derivative of $f(x) = e^{x^2} - 5x^3$.

3. (2ea) Find the quantities below using the table of values.

| x | $f(x)$ | $f'(x)$ | $g(x)$ | $g'(x)$ |
|-----|--------|---------|--------|---------|
| 0 | 5 | $1/3$ | -2 | 3 |
| 1 | 0 | -4 | $1/2$ | 4 |
| 2 | 2 | 1 | 7 | 6 |

(a) $h'(0)$ if $h(x) = (f(x))^2$

(b) $k'(-1)$ if $k(x) = g(f(x^2))$

(c) (cont'd) $m'(1)$ for $m(x) = g(\sin(\pi x))$

4. (3) Compute $k'(x)$ for $k(x) = 2 \tan(3x) - x \cos(x)$.

5. (4) What is the slope of the line tangent to the graph of $f(x) = \ln(x^2 - 3) + \sin(\pi x) + x$ at the point where $x = 3$?