

## GROUP WORK I, SECTION 3.5

### Unbroken Chain

For each of the following functions of  $x$ , write the equation for the derivative function. This will go a lot more smoothly if you remember the Sum, Product, Quotient, and Chain Rules... especially the Chain Rule! Please do us both a favor and don't simplify the answers.

1.  $f(x) = \sin 3x$   $f'(x) =$

2.  $g(x) = (\sin 3x)^3$   $g'(x) =$

3.  $h(x) = (\sin 3x)^3 + 5x$   $h'(x) =$

4.  $j(x) = [(\sin 3x)^3 + 5x]^5$   $j'(x) =$

5.  $k(x) = x + \frac{1}{x}$   $k'(x) =$

6.  $l(x) = \sqrt{x + \frac{1}{x}}$   $l'(x) =$

7.  $m(x) = \left(\sqrt{x + \frac{1}{x}}\right) [(\sin 3x)^3 + 5x]^5$   $m'(x) =$