CHAIN RULE

TEXT: 2.4

LAST NAME	FIRST NAME	DATE

1 (6 points)**.** The first part of this problem is to be completed by one of your peers.

Consider the following functions:

$A(x) = 6\cos(x)$ $B(x) = -8x^5$ $C(x) = -2\sqrt{x}$ $D(x) = \csc x$

Write down expressions for the following compositions:

$A(B(x)) =$ $D(B(x)) =$

$B(A(x)) =$ $C(A(x)) =$

$B(C(x)) =$ $D(A(x)) =$

$C(D(x)) =$ $D(D(x)) =$

Pick one of your answers at random and circle it. You can now pass this page over back to its owner.

Write down expressions for the following compositions:

$A(D(C(x))) =$

$C(A(C(x))) =$

Finally, find the derivative of the function circled above by your peer:

2 (6 points)**.** Find $f(g)$ and $g(x)$ so that the given function is equal to $f(g(x))$, and both f and g can be differentiated without using the chain rule. Then use the chain rule to find the derivative function.

(a) $H(x) = 4\sin(x^2 + x)$

$f(g) =$ $g(x) =$

$\frac{df}{dg} =$

$\frac{dg}{dx} =$

$H'(x) =$

(b) $K(x) = -10\sqrt[5]{x\tan x}$

$f(g) =$ $g(x) =$

$\frac{df}{dg} =$

$\frac{dg}{dx} =$

$K'(x) =$