

Name _____ Date _____ Period _____

Worksheet 10.6—Hyperbolic Functions

Show all work on a separate sheet of paper. No Calculator

Free Response & Short Answer1. Find the derivatives with respect to x of each of the following functions

(a) $y = \coth 10x$

(b) $f(x) = 10^{\operatorname{sech} 2x}$

(c) $y = e^{2x} \tanh 7x$

(d) $g(x) = \ln(\operatorname{csch} x^3)$

Multiple Choice

2. Evaluate the following integrals.

(a) $\int \sinh(3x+4) dx =$

(A) $3 \cosh(3x+4) + C$

(B) $-3 \cosh(3x+4) + C$

(C) $\frac{1}{3} \cosh(3x+4) + C$

(D) $-\frac{1}{3} \cosh(3x+4) + C$

(E) $\frac{1}{3} \sinh(3x+4) + C$

(b) $\int \cosh^5 x \sinh x dx =$

(A) $\frac{1}{6} \cosh^6 x + C$

(B) $6 \cosh^6 x + C$

(C) $5 \cosh^4 x + C$

(D) $\frac{1}{4} \cosh^4 x + C$

(E) $\frac{1}{5} \cosh^5 x + C$