

Math 152-37, Mr. Church, Homework 14

Due in class on Wednesday, December 3.

Please staple your homework.

1. Exercise 7.8.52.
2. (a) Calculate $\frac{d}{dx} \sinh x \cosh x$.
(b) Exercise 7.8.40. [Hint: Recall that $\cosh^2 x = 1 + \sinh^2 x$.]
(c) Exercise 7.8.50.
3. Let $f(x)$ be a differentiable function.
(a) Calculate $\frac{d}{dx} f(-x)$. [Hint: set $u(x) = -x$ and write $f(-x) = f(u(x))$.]

Let $g(x)$ be an even function and let $h(x)$ be an odd function; that is, $g(-x) = g(x)$ and $h(-x) = -h(x)$. Assume both are differentiable.

- (b) Show that $g'(-x) = -g'(x)$ and $h'(-x) = h'(x)$.

This shows that the derivative of an even function is odd, and the derivative of an odd function is even.

4. Exercise 5.8.34. (You did Exercise 5.8.33 on Homework 9.)