

Math 156: Calculus II
Fall 2017
Homework 1

Name (Print): _____

1. Let $f(x) = \sin(x)$. What is $f'(x)$?

2. Find $\frac{d}{dx}(e^{x^2})$.

3. Find $\frac{d}{dx}(\ln(x))$.

4. Find $\frac{d}{dx}(x^4 - 3x^2 + 4x + 17)$.

5. Find $\frac{d}{dx}(\sqrt{4x - 1})$.

6. Find $\frac{d}{dx}\left(\frac{e^x}{x^3}\right)$.

7. Find $\frac{d}{dx}(\sqrt{x} \ln(x))$.

8. Consider the curve $xe^y = x^3 - 4y^2$. Use implicit differentiation to find $\frac{dy}{dx}$.

9. Find $\int \sin(x) dx$.

10. Find $\int x^{-2} dx$.

11. Find $\int x^{-1} dx$.

12. Find $\int e^{3x} dx$.

13. Find $\int x \sin(x^2) dx$.

14. Compute $\int_1^e \frac{\ln(x)}{x} dx$.

15. Compute $\int_0^\pi \cos(x) dx$.

16. Compute $\int_0^1 x^2 - 4x + 17 dx$.

17. Compute $\int_0^9 \sqrt{x} dx$.