

## A bunch of practice problems

### Derivatives

1.  $\frac{d}{dx} \sec(e^{\sin x})$
2.  $\frac{d}{dx} (\sin x)^{\cos x}$
3.  $\frac{d}{dx} \log_3(x^{2x})$
4.  $\frac{d}{dx} \frac{(x+2)^{3/2} e^{x^2}}{\sqrt{x^3+2}}$

### Integrals

5.  $\int \frac{1}{x^2 + 6x + 10} dx$
6.  $\int \frac{2x + 6}{x^2 + 6x + 10} dx$
7.  $\int x^2 e^x dx$
8.  $\int \frac{\ln x}{x^3} dx$
9.  $\int \frac{1}{\sqrt{x^2 + 4x + 5}} dx$
10.  $\int \sec^2 x dx$
11.  $\int \tan^2 x \sec^2 x dx$