

MA 225 Review Sheet (HW 1)

1. Calculate the derivative of each expression:

(a) $\ln(2x + 3)$

(b) $e^{3x} \sin(\pi x)$

(c) $\frac{x^5}{x^2+1}$

(d) $\sin(\cos(x^3))$

2. Calculate the following definite and indefinite integrals:

(a) $\int \frac{1}{x} dx$

(b) $\int \frac{1}{x+5} dx$

(c) $\int \cos(5x) (\sin(5x))^3 dx$

(d) $\int_1^5 \frac{x}{x^2+3} dx$

(e) $\int_0^1 x e^x dx$

3. Compute the line tangent to $f(x) = \sin(\pi x) + \frac{3x}{x^2+2}$ at $x = 1$.