

**MA114 Summer II 2018
Review Worksheet**

1. Compute the derivative of each function:

(a) $f(x) = x^{7.1}$

(b) $g(s) = \tan(s)$

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

(d) $z = \cos(7x^2 + 2x + 1)$

(e) $w = \arctan(x)$

2. Solve the equation for x : (without using the quadratic formula)

$$6x^2 + 13x = 5$$

3. Compute these limits:

(a) $\lim_{x \rightarrow \infty} \frac{7x^3 + 2x + 1}{5x^3 + 17}$

(b) $\lim_{x \rightarrow \infty} \frac{\ln(x)}{x}$

4. Find each integral:

(a) $\int \frac{x^3 + 3x + 1}{x} dx$

(b) $\int (e^x + \cos(x) + \sin(x)) dx$

(c) $\int z^3 \cos(z^4 + 7) dz$

(d) $\int \frac{1}{5 - 2y} dy$

5. Simplify the given expression:

$$\frac{120 z^{15} (x + 2)^{n+1} y^{7/2}}{24 y^3 (x + 2)^n z^{27}}$$