

Directions:

1. Write your name with one character in each box below.
2. Show all work. No credit for answers without work.

1. [4 parts, 1 point each] Compute the derivatives of the following functions.

(a) $f(x) = \cos(1)$

(c) $u(z) = \tan^3(z^2)$

(b) $g(t) = \frac{2t+2}{t+2}$

(d) $h(y) = \ln(\sqrt{y})$

2. [4 parts, 1 point each] Compute the following indefinite integrals.

(a) $\int \frac{1}{2z} dz$

(c) $\int \csc x \cot x dx$

(b) $\int \sec^2 x dx$

(d) $\int (y+2)(y^2-1) dy$

3. [2 points] Find the number b so that the area under the curve $y = x^2$ from $x = 1$ to $x = b$ is exactly 1.