

Name: _____

Directions: Show all work. No credit for answers without work.

1. [**2 parts, 1 point each**] Differentiate the following functions.

(a) $y = 3e^{t^2} + \sqrt{t}$

(b) $y = \frac{e^t - t}{e^t + t}$

2. [**2 points**] Compute $\frac{\partial w}{\partial x}$ and $\frac{\partial w}{\partial y}$ where $w = \sin(xy) + y \ln(x) + e^x$.

3. [2 parts, 2 points each] Solve the following integrals.

(a) $\int te^{t^2} dt$

(b) $\int \frac{1}{x^2 - 5x + 6} dx$

(c) $\int \cos^2 t dt$