

Name: _____

Directions: Show all work. No credit for answers without work. Primes denote derivatives with respect to x .

1. [5 points] Solve the following.

(a) $xy' - y = x^2$, $y(2) = 10$.

(b) $3y^2y' + y^3 = e^{-x}$

2. [2.5 points] Solve: $x^2y' = xy + x^2e^{y/x}$.

3. [2.5 points] Verify that the following differential equation is exact, and solve.
 $(4x - y)dx + (6y - x)dy = 0$.