

Quiz 9.1 - 9.5

Show *all* work for full credit. No calculators.

12 pts.

Name: _____

Per.: _____

Note: $e \approx 2.71828$ and $1/e \approx 0.367879$

- 1) a) Solve the following differential equation using *separation of variables*.
 $y' + 2xy = 2x$ (3 pts.)
b) Check your answer using the original differential equation. (1 pt.)

- 2) a) Solve the following IVP using *an integrating factor*.
 $y' + 2xy = 2x, \quad y(0) = 2$ (3 pts.)
b) What is the exact value of $y(1)$? (1 pt.)

- 3) a) Use *Euler's Method* with a step size of 0.5 to estimate the value of $y(1)$ where y is the solution of the initial-value problem:
 $y' = 2x - 2xy, \quad y(0) = 2$. (3 pts.)
b) Use the given direction field to sketch the solution that satisfies the initial condition $y(0) = 2$. (1 pt.)

