

**Math 10B with Professor Stankova**

**Quiz 9; Tuesday, 3/20/2018**

**Section #211; Time: 11 AM**

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**Name: \_\_\_\_\_**

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Circle True or False or leave blank. (1 point for correct answer,  $-1$  for incorrect answer,  $0$  if left blank)

1. True    False    A solution to an IVP may not always exist nor be unique.
2. True    False    In order to verify that  $a_n = f(n)$  is a solution to a recurrence equation, we need to solve the recurrence equation and see if it matches with  $f(n)$ .

Show your work and justify your answers. Please circle or box your final answer.

3. (10 points) (a) (4 points) Find the solution to  $a_n = a_{n-1} + 2a_{n-2}$  with  $a_0 = 0, a_1 = -3$ .

(b) (2 points) Verify that  $3n + 1$  is a solution to  $a_n = 2a_{n-1} - a_{n-2}$ .

(c) (4 points) Find the general solution to  $y' + y = e^{-t}$ .