Math 10B with Professor Stankova
Quiz 12; Tuesday, 4/17/2018
Section #203; Time: 9:30 AM
GSI name: Roy Zhao **Name:** _____

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

1. True False If two vectors are perpendicular to each other (they form an angle of $90°$), then their dot product is 0.

2. True False If we have found two different solutions to $A\vec{x} = \vec{b}$, then $\det(A) = 0$.

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

3. (10 points) Let $A = \begin{pmatrix} 2 & 1 & 4 \\ 0 & 2 & 1 \\ -1 & 1 & 0 \end{pmatrix}$, $B = \begin{pmatrix} 3 & 5 \\ 1 & 2 \end{pmatrix}$, $\vec{v} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$

   (a) (2 points) Calculate $B\vec{v}$.

   (b) (4 points) Find a solution to $B \begin{pmatrix} x \\ y \end{pmatrix} = \vec{v}$.

   (c) (1 point) Is it unique? Why?

   (d) (3 points) Calculate $\det(A)$.