

Quiz Six

Lecture: 8:30 **SI:** Alex Becca
 9:30 Ashley Jason
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No notes. Calculators are allowed.

Write clearly and explain your reasoning.

- 1 (6 points) The given augmented matrices can be transformed using elimination (or elementary row operations) into the shown new, simpler ones. In each case, find the unknown constant (a , b , or c).

(a) (2 points)
$$\left[\begin{array}{cc|c} 1 & a & 3 \\ 2 & 4 & 8 \end{array} \right] \longrightarrow \left[\begin{array}{cc|c} 1 & a & 3 \\ 0 & 1 & 2 \end{array} \right].$$

(b) (2 points)
$$\left[\begin{array}{cc|c} 1 & 2 & b \\ -1 & 3 & 12 \end{array} \right] \longrightarrow \left[\begin{array}{cc|c} 1 & 2 & b \\ 0 & 1 & 2 \end{array} \right].$$

(c) (2 points)
$$\left[\begin{array}{cc|c} 1 & 2 & 3 \\ c & 1 & 2 \end{array} \right] \longrightarrow \left[\begin{array}{cc|c} 1 & 2 & 3 \\ 0 & 1 & 3 \end{array} \right].$$

- 2 (6 points) Find the solution of the linear system corresponding to the following augmented matrix. (If there is no solution, write “inconsistent.”) You must use row reduction (elementary row operations) and you must show your work. Minimal credit will be given for simply writing down the answer.

$$\left[\begin{array}{ccc|c} 1 & 2 & -1 & -3 \\ 4 & 0 & 2 & -4 \\ -2 & 1 & 2 & 16 \end{array} \right]$$

- 3 (8 points) Two groups of students go out to eat at Jalapeño Burrito Company. One group gets 4 burritos and 3 colas; their bill is \$29. The second group gets only 3 burritos, but 6 colas; their food costs \$27. How much does each burrito and each cola cost? (Assume that each burrito costs the same, and each cola costs the same.)