Math 2243 Fall 2015 - Quiz 5

10/22/15 - 10 Minutes **Name:**

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(1) (3 points) Let $\vec{a} = (-1, 0, 2)$ and $\vec{b} = (-1, 2, 0)$. Find $|2\vec{a} - \vec{b}|$.

1 point for scalar multiplication and subtraction of vectors,
1 point if the length formula of a vector is correct,
1 point for the answer.

ANS: square root of 21

(2) (7 points) Consider the system of linear equations,

$$x_1 + 3x_2 + 3x_3 = 0$$

$$2x_1 + 7x_2 + 5x_3 = 0$$

Reduce the given system to echelon form to find a single solution vector $\vec{u}$ such that the solution space is the set of all scalar multiples of $\vec{u}$.

(1 point) for writing the matrix,
(1 point) for finding the echelon form,
(1 point) for deciding free variable which is x_3 in this case,
(2 point) saying; $x_3 = s$ and writing other variables in terms of s; $x_1 = -6s\,, x_2 = s$
(1 point) writing the solution as; $(-6s, s, s)$
(1 point) for plug in 1 or take s out or plug in any number for s and write it a a vector.

here if the student's mistake is only one of those steps, deduct the corresponding amount of points,

if there is no mistake even the step is missing, still full credit.