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# 3. MATLAB and RREF Reduced row echelon form (RREF) (External resource)

(1.0 points possible)

4/9/2018

$$\begin{bmatrix} -3 & 5 & 10 \end{bmatrix}$$

We want to solve the problem:

$$Ax = b$$

with

$$\mathbf{b} = \begin{bmatrix} 1 \\ -1 \\ 1 \end{bmatrix}$$

By completing the template below, use RREF to find  $\mathbf{x} = \begin{bmatrix} x \\ y \\ z \end{bmatrix}$ .

## Your Script

```
1 % Input your 3x3 matrix A and the 3x1 vector b
2 A = [2 1 1; 1 7 4; -3 5 10];
|b| = [1; -1; 1];
4 % Now create the 3x4 matrix Augmented matrix. You do not need to type out all of 1
5 % Think about what we learnt about creating arrays in recitation 1.
6 %
7 Aug = [A,b];
9 % MATLAB will now calculate the reduced row echelon form of Aug
|11|R = rref(Aug);
12 %
|3| % Recall For a 3x3 matrix, the solution x (if it exists) will just be the last col
|14| % Extract the last column of R and assign it to a variable x.
15 %
16 x = R(:,size(R,2))
17 %
18 % Now check that this does indeed solve the problem by calculating b1 = A*x.
19 b1 = A*x
```

► Run Script ② ()

### **Assessment: Correct**

Submit



rref present?

- ✓ Value of x
- check matrix Aug
- Check value of b1

## Output

```
x =

0.5000
-0.5000
0.5000

b1 =

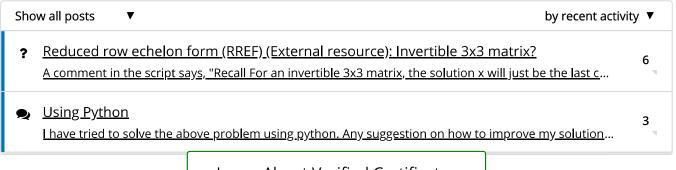
1
-1
1
```

#### 3. MATLAB and RREF

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Topic: Unit 1: Linear Algebra, Part 1 / 3. MATLAB and RREF

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