3. MATLAB and RREF

Reduced row echelon form (RREF) (External resource)

(1.0 points possible)

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

We want to solve the problem:

$$\mathbf{Ax} = \mathbf{b}$$

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

Save Reset MATLAB Documentation (https://www.mathworks.com/help/)

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

▶ Run Script ()

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
```

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? Reduced row echelon form (RREF) (External resource): Invertible 3x3 matrix? 6
A comment in the script says, "Recall For an invertible 3x3 matrix, the solution x will just be the last c...

Using Python 3
I have tried to solve the above problem using python. Any suggestion on how to improve my solution...

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