

Name: _____

Math 220
Winter 2024
Assessment 1
Dusty Wilson

This is your last chance ... You take the blue pill - the story ends, you wake up in your bed and believe whatever you want to believe. You take the red pill - you stay in Wonderland and I show you how deep the rabbit hole goes.

Morpheus in *The Matrix* (1999)

No work = no credit

1. Warm-ups

(a) (1 point) $-1^2 =$

(b) (1 point) Matrix with 3 rows:

(c) (1 point) Matrix with a free variable:

2. (1 point) What is the "red pill" of academia (college)? Answer using complete English sentences.

3. (8 points) Solve the following system using the methods of this class.

$$2x + 7y = 50$$

$$5x - 3y = 2$$

4. (2 points) Give an example of a linear system that is inconsistent.

5. (2 points) True or False: Whenever a system has free variables, the solution set contains an infinite number of solutions.

Justify your answer.

6. (8 points) Solve the system with the given augmented matrix and write the solution in vector form.

$$\left[\begin{array}{ccc|c} 1 & -1 & -1 & 2 \\ 3 & -3 & 2 & 16 \\ 2 & -1 & 1 & 9 \end{array} \right]$$

7. (2 points) Give an example of a linear system with an infinite number of solutions

8. (8 points) Solve the system with the given augmented matrix and write the solution in vector form.

$$\left[\begin{array}{ccccc|c} 0 & 2 & -2 & 6 & -4 & -10 \\ 0 & 0 & 0 & 0 & 7 & 14 \\ 0 & 0 & 1 & 9 & 1 & 3 \\ 0 & 0 & 0 & 0 & 2 & 4 \end{array} \right]$$