2.4 Test Review

Show all work on a separate paper to receive credit.

Solve the system using technology. — Use "RREF( " and an augmented matrix. The answer must be in "(x, y, z)" form or "x=" "y=" "z" form.

1. \(-3x + 4y + 2z = 1\)
   \(+2y - z = 6\)
   \(2x - y + 3z = 7\)

2. Solve using substitution. — see notes for specific steps
   \(x + y - 3z = -10\)
   \(x - y + 2z = 3\)
   \(2x + y - z = -6\)

Solve using Gaussian Elimination. — see notes for specific steps

3. \(5r - 5s + 4t = 15\)
   \(3r + 5s - 6t = 7\)
   \(-r + 5s - 5t = 20\)

Tell whether the ordered pair is a solution of the system of linear inequalities.

4. \((-20, 91): \ x + y > -7\)
   \(x + y \leq -4\)
   \(-4x - y < 6\)
   \(-4x - y \geq -8\)

Graph the system of linear inequalities.

5. \(3x - 3y \geq -6\) see 
   \(7x - 3y \leq 3\)
   \(x + 3y > -3\)

6. The school government consists of seven to eight representatives from the junior and senior classes. There must be at least two juniors and at least four seniors in the school government. Write a system of inequalities that represents the situation. Let \(x\) be the number of juniors and \(y\) be the number of seniors.

\[ 7 \leq J + S \leq 8 \]
\[ J \geq 2 \]
\[ S \geq 4 \]

Why did we use this system? — EXPLAIN
7. Write a system of linear inequalities represented by the graph.

Write an augmented matrix for the system. Then state the dimensions.

8. \[3x + 18y + 9z = 19\]
\[x - 3y + z = 18\]
\[-7x - 10y + z = 19\]

9. A racetrack charges $90 for each seat in the lower section, $50 for each seat in upper sections, and $30 for field tickets. There are two times the amount of seats in the upper section as compared to the lower section. The revenue from selling all 18,200 seats is $686,000.
   a. Write a system to represent the situation.
   b. How many seats are in each section of the racetrack?
   c. What if on the first day 3100 tickets are sold generating $173,000 in revenue. The number of seats sold in the upper and lower sections are the same. How many field tickets are left?