Alg II   Unit 4 Test: Systems of Equations   Show all calculations in a neat and organized manner.
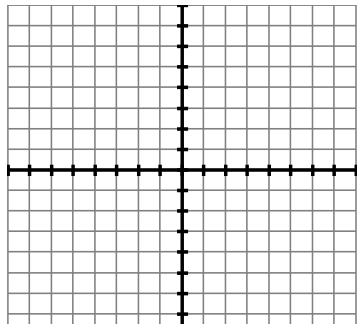
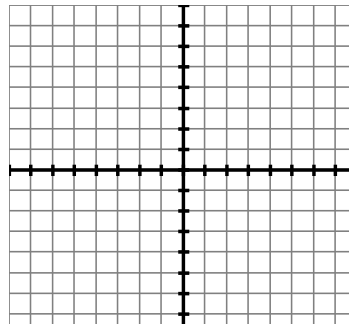AEE6.01 _____ (solving systems)   AEE6.02 _____(word problems for systems)

This exam contains only Level 3 work. See me if you're going for the 4!!
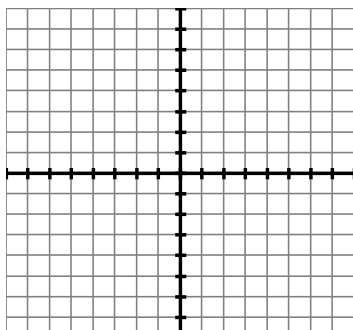
1. Solve the systems by graphing.

a. $\begin{cases} y = 4 - x \\ y = \dfrac{2}{3}x - 1 \end{cases}$

b. $\begin{cases} y = 2x + 3 \\ 6x - 3y = 12 \end{cases}$

c. $\begin{cases} y = -3(x + 1) + 4 \\ x = -2 \end{cases}$

2. Solve the systems by substitution.

a. $\begin{cases} 3x - 5y = -16 \\ y = 4x - 7 \end{cases}$

b. $\begin{cases} y = 7x + 4 \\ y = -2x - 14 \end{cases}$

c. $\begin{cases} -3y + 4x = -33 \\ 5x - y = -22 \end{cases}$
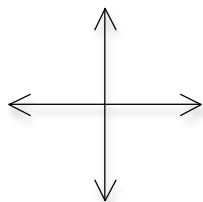
3. Solve the systems by Elimination.

a. $\begin{cases} 5x - 2y = -15 \\ 3x - 2y = -13 \end{cases}$

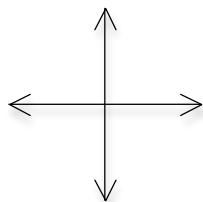b. $\begin{cases} 2x - 3y = 14 \\ 7x - 9y = 50 \end{cases}$

c. $\begin{cases} 8x - 12y = -4 \\ -1 - 2x = -3y \end{cases}$

4. Sketch the graphs of systems that match the number of solutions.
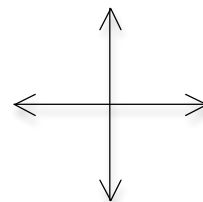
a. One solution

b. Infinitely many solutions

c. No solution

5. Write (but don't solve) a system of 2 (non-identical) equations that matches the description.

a. Has infinitely many solutions

b. Has no solution

For the following, clearly identify your variables, set up a system, and solve it so you can answer the question. Show all work so that I can see that you're using Alg II skills, not guess and check.

6. Gina likes to combine jogging and walking to exercise. On day she jogged and walked for 1 hour and covered 4.2 miles. Her jogging speed was 5 mph, and her walking speed was 3 mph. Find her time spent walking and her time spent jogging.

6. A noodle ringer for rolling homemade noodles costs $40. The ingredients for each batch of homemade noodles cost $0.25. A batch of store-bought noodles costs $0.50. How many batches would you need to make to have the cost be the same in either case?

7. Tom and Jim knit hats for charity. They donated a total of 41 hats. Jim actually knit 2 more than twice the amount that Tom did. How many hats did each knit?

For 8 – 12, graph each system very neatly and highlight the solution region with either a distinct color or with happy faces. Clearly mark the boundaries. Color code the inequalities and their graphs.
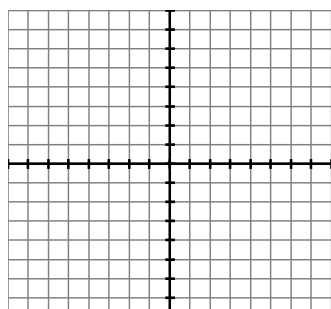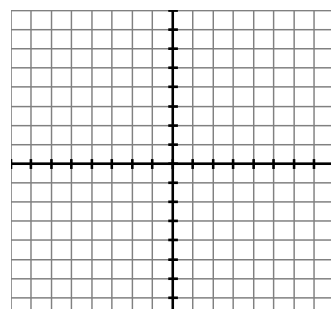
8. $\begin{cases} y > 3 + 5x \\ y > -2 \end{cases}$
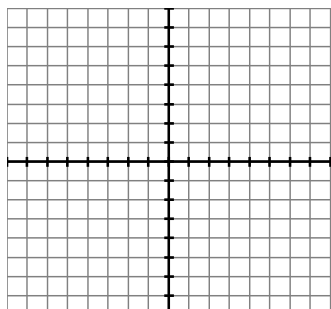
9. $\begin{cases} y > -\dfrac{2}{3}(x + 2) + 4 \\ 5x - 2y < 10 \end{cases}$
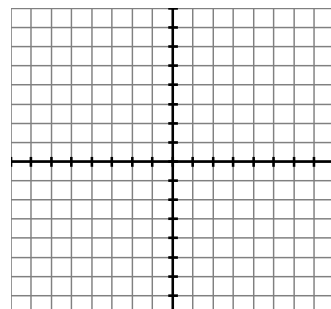
10. $\begin{cases} 3y < x + 3 \\ x \geq 1 \end{cases}$

11. $\begin{cases} y \geq \dfrac{1}{4}(x + 2) + 1 \\ x + y > -2 \end{cases}$

12. Write a system of inequalities to match the graphs.