

YOUR NAME: _____

George Voutsadakis

Read each problem **very carefully** before starting to solve it. Each problem is worth 10 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Solve the absolute value inequality and graph the solution set:

$$7|1 - 3x| - 19 \leq 9.$$

2. How many gallons of a 5% alcohol solution should be mixed with 10 gallons of a 12% alcohol solution to get a 9% solution?

- (a) Introduce variable(s) clearly stating their meaning.

- (b) Write an equation reflecting the statement.

- (c) Solve the equation to answer the question posed.

3. Find an equation for the line ℓ that passes through $(13, -5)$ and is perpendicular to the line ℓ' , with equation $3x - 15y = 2017$. Then put the equation you found in the slope-intercept form.

4. Graph the solution set of the compound inequality in **two** variables:

$$3y \leq x + 3 \quad \mathbf{and} \quad x - y \leq 1.$$

5. A guest in a gallery opening could either buy a cheap ticket that cost \$1.50 and included a snack or a more expensive ticket that cost \$3.50 and included an appetizer and a refreshment. If 120 people attended the opening and the gallery's revenue was \$274, how many guests opted for the cheap and how many for the more expensive option?