# EXAM 1 - MATH 102
Friday, September 25
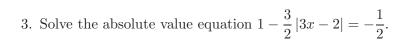
## YOUR NAME:_____
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Read each problem **very carefully** before starting to solve it. Each problem is worth 10 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Solve the linear inequality $\dfrac{x+1}{4} - \dfrac{x-1}{6} \leq x + 5$. Please, write your answer in interval notation and graph the solution set.

2. Daniel makes $20,000 more per year than his wife Rebecca. He gives 2% of his income to charity whereas Rebecca gives 5% of her income to charity. If together, they contribute $6,000 per year to charity, what is Rebecca's annual salary? (Set variables, stating meaning clearly, write an equation reflecting data and solve the equation.)

3. Solve the absolute value equation $1 - \dfrac{3}{2}\,|3x - 2| = -\dfrac{1}{2}$.

4. Solve the **compound inequality**, write your answer in interval notation and graph the solution set:
$$3x - 2 < 7 \quad \text{or} \quad -3x - 4 \le 11.$$

5. Write an equation in slope-intercept form for the line $\ell$ that passes through $(-6, 2)$ and is perpendicular to the line $\ell'$ with equation $3x - 9y = 7$