Math 0 First Homework

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Dear students, please send the solutions to me by mail no later that Saturday, September 20th. Late solutions will not be graded. PDF or jpg or what suits you, BUT NO HEIC files. Please write down the solutions in the given order, first for ex 1, then 2 and so on.

Please answer showing all the necessary reasoning and steps AND WRITE CLEARLY THE SOLUTIONS THEMSELVES.

You will receive the grading by Monday morning, and the grades will count for the final grade for the math0 exam.

1. Is true that $\sqrt{3} + \sqrt{5} - \sqrt{10} > 1$?

   Solution. False. $\qquad\square$

2. Solve $3\,|x - 1| - 2x + |x - 1| = 1$

   Solution. $x = \frac{1}{2}, \frac{5}{2}$ $\qquad\square$

3. Solve $3\,|2x - 1| - |x + 2| = 1$

   Solution. $x = 0, \frac{6}{5}$ $\qquad\square$

4. Solve $|2x - 1| > |x - 2|$

   Solution. $x \in (-\infty, -1) \cup (1, \infty)$ $\qquad\square$

5. Solve the linear system of equations $\begin{cases} 3x - y + z = 0 \\ x + y + z = 1 \\ x - 2y - 3z = 1 \end{cases}$

   Solution. $x = \frac{7}{10}, y = \frac{6}{5}, z = -\frac{9}{10}$ $\qquad\square$

6. Solve the linear system of equations $\begin{cases} 2x - y + z = 1 \\ 3x + 2y + z = 1 \end{cases}$

   Solution. $x = \alpha, y = -\frac{\alpha}{3}, z = 1 - \frac{7\alpha}{3}$ $\qquad\square$

7. Solve the system of equations $\begin{cases} 2\,|x - 1| + y = 0 \\ 3\,|x - 1| + 2y = 1 \end{cases}$

   Solution. $x = -2$ and $y = -4$, $\qquad$ $x = 4$ and $y = -4$ $\qquad\square$