Name: _____

MATH 101
Fall 2023
HW 13: Due 11/06

"Teachers open the door, but you must enter by yourself."
–Chinese Proverb

Problem 1. (10pt) Find the inverse of the linear function $\ell(x) = \frac{5}{6} - 8x$. Use this inverse function to solve the equation $\ell(x) = 10$.

Problem 2. (10pt) Explain why the lines $\ell_1(x) = 8x + 3$ and $\ell_2(x) = 9 - 5x$ intersect. Find their point of intersection.

Problem 3. (10pt) Find the line perpendicular to the line $y = 7 - \frac{2}{3}x$ that contains the x-intercept of the line $y = 7x + 3$.

Problem 4. (10pt) Write down an expression that gives the equation for all linear functions passing through the point $(3, 5)$, then use this to find the line that passes through $(3, 5)$ and has x-intercept -6.