ACMAT117 Fall 2025
Professor Manguba-Glover
Section 2.2-2.3 Classwork (CW 5) Name: _____

Complete as many of the following problems as you can with your group. You do not have to go in order. Each group will be given a specific problem that they must complete and present to either Professor MG or to Stefanie before they leave.

If **your entire table** finishes early, and you have presented your given problem, you may leave early.

(1) Write the point-slope form of the equation satisfying the given conditions. Then use the point-slope form of the equation to write the slope intercept form of the equation.

   (a) Parallel to $y = 4x$ and passing through $(4, 1)$
   (b) Perpendicular to $y = 4x$ and passing through $(1, 4)$
   (c) Passing through $(-8, 8)$ and perpendicular to the line that has an x-intercept of $(3, 0)$ and a y-intercept of $(0, -6)$.

(2) Solve the following linear equations, then check your answers:

   (a) $2x + 9 = 14$
   (b) $-2b + 8 = 3b - 7$
   (c) $\frac{x-3}{4} = \frac{5}{14} - \frac{x+5}{7}$

(3) Solve the following linear equations, then check your answers:

   (a) $4(2x - 4) = -20$
   (b) $5 - \frac{2x}{3} = -9$
   (c) $\frac{1}{2}(x + 4) = \frac{1}{3}x$

(4) Determine if the following equations are conditional equations, contradictions, or identities:

   (a) $5(a - 3) - 3(a - 6) = 2(a + 1) + 1$
   (b) $2(3m + 1) = 6m + 3$
   (c) $\frac{2-3x}{4} = 5$

(5) Solve the following linear inequalities. Write your answer in **interval notation**.

   (a) $-3x - 1 \geq 11$
   (b) $5x - 7 \geq -17$
   (c) $-6x + 4 < -14$
   (d) $\frac{1}{4}z - \frac{1}{2} < \frac{2z}{3} + 2$

(6) Solve the following compound inequalities. Write your answer in **interval notation**.

(a) $-1 \leq 2x + 3 < 11$

(b) $-5 < 2x - 3 < 5$

(c) $-2 \leq \frac{x}{3} + 5 < 4$

(d) $15 \leq 7 - \frac{2}{5}x \leq 21$

Key:

(1) (a) $y - 1 = 4(x - 4)$, $y = 4x - 15$
(b) $y - 4 = -\frac{1}{4}(x - 1)$, $y = -\frac{1}{4}x + \frac{17}{4}$
(c) $y - 8 = -\frac{1}{2}(x + 8)$, $y = -\frac{1}{2}x + 4$

(2) (a) $x = \frac{5}{2}$
(b) $b = 3$
(c) $x = 1$

(3) (a) $x = -\frac{1}{2}$
(b) $x = 21$
(c) $x = -12$

(4) (a) Identity
(b) Contradiction
(c) Conditional

(5) (a) $(-\infty, -4]$
(b) $[-2, \infty)$
(c) $(3, \infty)$
(d) $(-6, \infty)$

(6) (a) $[-2, 4)$
(b) $(-1, 4)$
(c) $[-21, -3)$
(d) $[-35, -20]$