Worksheet ---- Absolute Value Equations/Inequalities

1. Find the indicated intersection or union.

   (a) $\{5, 6, 8, 9\} \cup \{-10, 2, 4, 9\}$
   (b) $\{5, 6, 8, 9\} \cap \{-10, 2, 4, 9\}$
   (c) $\{5, 6, 8, 9\} \cup \varnothing$
   (d) $\{5, 6, 8, 9\} \cap \varnothing$

2. Solve. Graph the solution set. Write answer using interval notation, if applicable.

   (a) $-3 \le x + 4 < 7$
   (b) $-5y - 1 > -9y + 3$
   (c) $-3x > 12$ *or* $4x > -10$
   (d) $x + 3 \le 5$ *and* $x + 3 > -4$
   (e) $|2 - 5x| = -10$
   (f) $|4x - 1| < 5$
   (g) $|2x + 3| \ge 3$
   (h) $|2x + 5| = |x - 9|$
   (i) $2|x - 4| + 4 = 12$
   (j) $5 - 2|3x - 4| = -5$

3. Solve.

   (a) $|3 - x| = -4$ (b) $|y + 2| \le -2$ (c) $|x - 5| > -3$

4. Graph each solution set on the rectangular coordinate system.

   (a) $2x - 3y < 6$

   (b) $y \ge 2x$

   (c) $-2 \le x < 5$

   (d) $\begin{cases} x - y \le 3 \\ y > -1 \\ x + y > -2 \end{cases}$

   (e) $\begin{cases} x > 3 \\ y < 2 \\ x \le 6 \end{cases}$