1. Solve the inequality below and write your answer in set builder notation.

\[(x - 3) < -2(x + 2) \leq x\]

Split this compound inequality into the two inequalities

\[x - 3 < -2(x + 2) \quad \text{and} \quad -2(x + 2) \leq x\]

The first inequality is

\[x - 3 < -2(x + 2) \iff x - 3 < -2x - 4 \iff 3x < -1 \iff x < -\frac{1}{3} \]

and the second inequality is

\[-2(x + 2) \leq x \iff -2x - 4 \leq x \iff -4 \leq 3x \iff -\frac{4}{3} \leq x \iff x \geq -\frac{4}{3} \]

In set builder notation, the solution set is

\[\left\{ x \mid -\frac{4}{3} \leq x < -\frac{1}{3} \right\} \]

2. Write your answer in interval notation.

\[\left[ -\frac{4}{3}, -\frac{1}{3} \right) \]

3. Indicate your solution on the number line below.