Simplifying Interval Notation

A. **Simplify the given interval notation.**

1) $(-\infty, 1]\cup[-8, \infty)$

      Simpliest Form: $(-\infty, \infty)$

2) $[-4, 0)\cup[-8, 3)$

      Simpliest Form: $[-8, 3)$

3) $[-7, 7)\cup[-4, 3)$

      Simpliest Form: $[-7, 7)$

4) $(-\infty, 1]\cup(-8, \infty)$

      Simpliest Form: $(-\infty, \infty)$

5) $(-\infty, 3]\cup[1, 9)\cup(7, \infty)$

      Simpliest Form: $(-\infty, \infty)$

6) $(-\infty, 4)\cup[2, 10]\cup[5, \infty)$

      Simpliest Form: $(-\infty, \infty)$

Polynomial Inequality

B. **Give the solution set to the given polynomial inequality.**

1) $-(x-1)(x+1)(x+2)^2 \geq 0$

      Solution Set: $\{-2\} \cup [-1, 1]$

2) $(x-1)^2(x+2)(x+3) < 0$

      Solution Set: $(-3, -2)$

3) $-(x-2)(x-1)(x+1)(x+2) > 0$

6) $(x-1)(x+1)(x+2)^2(x+3) \geq 0$

Solution Set: $(-2,-1) \cup (1,2)$

Solution Set: $[-3,-1] \cup [1,\infty)$

4) $(x+1)(x+3)^2 < 0$

7) $-(x-2)(x+1)(x+3)^2 \leq 0$

Solution Set: $(-\infty,-3) \cup (-3,-1)$

Solution Set: $(-\infty,-1] \cup [2,\infty)$

5) $(x+1)^3(x+2)(x+3) \leq 0$

8) $(x+1)(x+2)^3 < 0$

Solution Set: $(-\infty,-3] \cup [-2,-1]$

Solution Set: $(-2,-1)$