Simplifying Interval Notation

A. Simplify the given interval notation.

1) $(-\infty, 2) \cup [-3, 5]$

Simpliest Form: $(-\infty, 5]$

2) $[-10, 6) \cup [-7, 1)$

Simpliest Form: $[-10, 6)$

3) $(-\infty, 6] \cup (-3, \infty)$

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

4) $(-\infty, 2) \cup (2, \infty)$

Simpliest Form: $(-\infty, 2) \cup (2, \infty)$

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

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

6) $(-\infty, 2] \cup [5, 11) \cup (7, \infty)$

Simpliest Form: $(-\infty, 2] \cup [5, \infty)$

Polynomial Inequality

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

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

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

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

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

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3) $(x-1)^4 (x+3) \leq 0$

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

Solution Set: $(-\infty, -3] \cup \{1\}$

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

4) $(x-1)^2 (x+1)(x+2) > 0$

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

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

Solution Set: $[-3, 2]$

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

8) $-(x-1)(x+1)^4 > 0$

Solution Set: $\emptyset$

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