

Name \_\_\_\_\_ Student No. \_\_\_\_\_ G \_\_\_\_/\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_  
Nickname: \_\_\_\_\_ Worksheet No.: \_\_\_\_\_

## Simplifying Interval Notation

### A. Simplify the given interval notation.

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

4)  $[-6, 5] \cup [-8, 2]$

Simpliest Form:

Simpliest Form:

2)  $(-\infty, 6] \cup (-8, \infty)$

5)  $(-\infty, 3) \cup [3, 10] \cup [6, \infty)$

Simpliest Form:

Simpliest Form:

3)  $[-7, 5] \cup [-6, 5]$

6)  $(-\infty, 2) \cup [7, 10] \cup [5, \infty)$

Simpliest Form:

Simpliest Form:

## Polynomial Inequality

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

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

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

Solution Set:

Solution Set:

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

Solution Set:

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

Solution Set:

$$5) (x-1)^2(x+2)^2(x+3) < 0$$

Solution Set:

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

Solution Set:

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

Solution Set:

$$8) (x+2)^2(x+3)^2 \geq 0$$

Solution Set:

C. Complete the given table below by converting set representation in different forms.

|    |  |   |  |
|----|--|---|--|
| 1  | $\{x \in \mathbb{R} \mid x < -2 \text{ or } x > -2 \}$           |   |  |
| 2  |  | $[-5, -1] \cup (1, 3]$                      |  |
| 3  |  |   |  |
| 4  | $\{x \in \mathbb{R} \mid -1 < x \leq 4 \text{ or } x \leq -4 \}$ |   |  |
| 5  |  | $(-\infty, -1) \cup (-1, 5]$                |  |
| 6  |  |   |  |
| 7  | $\{x \in \mathbb{R} \mid -6 \leq x < 3 \text{ or } x = 3 \}$     |   |  |
| 8  |  | $(-\infty, -2) \cup \{0\} \cup [3, \infty)$ |  |
| 9  |  |   |  |
| 10 | $\{x \in \mathbb{R} \mid x \leq -4, -4 \leq x < 3, x > 3\}$      |   |  |