**"OR" Statement**

1. \(-2(z - 3) \leq 14\)  
   \[-2z + 6 \leq 14\]  
   \[-2z \leq 8\]  
   \[z \geq -4\]

2. \(7 + z < 10\)
   \[z < 3\]  
   \([-4, \infty)\)  
   \((3, \infty)\)

- Put both solution sets on the same number line.

Anywhere there is a mark \(\approx\) is a part of your final solution set.

The solution set is the set of all real numbers.

**"AND" Statement**

1. \(-6(y - 1) \leq 60\)  
   \[-6y + 6 \leq 60\]  
   \[-6y \leq 54\]  
   \[y \geq -9\]  
   \([-9, \infty)\)

2. \(18 - y < 21\)  
   \[-y < 3\]  
   \[y > -3\]  
   \((-3, \infty)\)

- Put both solution sets on the same number line (with different colors).
Inequalities Involving Absolute Values

(A) when solving an absolute value less than (or equal to) some number \( |x| < \text{number} \) or \( |x| \leq \text{number} \)

Example (4)

\[
4 \leq |y+2| \leq 4
\]

\[
|y+2| \leq 1
\]

\[
-1 \leq y+2 \leq 1
\]

\[
-3 \leq y \leq -1
\]

\[
[-3, -1]
\]

Procedure:

1. Isolate the absolute value

2. Translate the absolute value into a double inequality
   
   * the expression inside absolute value stays the same
   
   * "sandwich" that expression between the number and its opposite

(B) when solving an absolute value greater than (or equal to) some number \( |x| > \text{number} \) or \( |x| \geq \text{number} \)

Example (4)

\[
8 \leq |3-w| \leq 24
\]

\[
|3-w| \geq 3
\]

\[
3-w \geq 3 \quad \text{or} \quad 3-w \leq -3
\]

\[
-w \geq 0, \quad w \leq 6
\]

\[
[0, 6]
\]

Procedure:

1. Isolate the absolute value

2. Translate to two non-absolute value inequalities
   
   * the expression inside absolute value stays the same
   
   * this expression is either greater than (or equal to) that number
   
   OR this expression is less than (or equal to) that number's opposite
(c) Exceptions

1. An absolute value equals a negative number. The solution set is an empty set. There is no solution.

2. An absolute value less than a negative number. There is also no solution.

3. An absolute value greater than a negative number. The solution set is all real numbers because it is always true that any absolute value is nonnegative \((-\infty, \infty)\)