**Lesson 2.5- Compound Inequalities.**

**Truth Tables**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **P** | **Q** | **P****True or False** | **Q****True or False** | **P AND Q****True or False** |
| **1 is an odd number** | **2 is an even number** |  |  |  |
| **1 is an odd number** | **2 is an odd number** |  |  |  |
| **1 is an even number** | **2 is an even number** |  |  |  |
| **1 is an even number**  | **2 is an odd number** |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **P** | **Q** | **P****True or False** | **Q****True or False** | **P OR Q****True or False** |
| **1 is an odd number** | **2 is an even number** |  |  |  |
| **1 is an odd number** | **2 is an odd number** |  |  |  |
| **1 is an even number** | **2 is an even number** |  |  |  |
| **1 is an even number**  | **2 is an odd number** |  |  |  |

**Compound Inequalities involving AND**

1). $4 \leq x+2 \leq 8$ 2). $-5 \leq 2x+3 <9$

**Compound In equalities involving OR**

3). $-4+x >1$ **OR**  $-4+x <-3$ 4). $2x \leq 6$ **OR**  $3x> 12$

**Expressing Acceptable Levels with Compound**

7). The recommended pH Level for swimming pool water is between 7.2 and 7.6, inclusive. Write a compound inequality to represent the indicated level.

8). The recommended free chlorine level for swimming pool water is between 1.0 and 3.0 parts per million, inclusive. Write a compound inequality to represent the indicated level.