**1.6 –Absolute Value Equations and Inequalities**

**Absolute Value**: the distance a number, x, is from 0 on a number line (denoted by)

**Absolute Values**

Find the absolute value for the following:

 

X=5 x=32

 

x=9 or x=-9 No solution

**Solving an Absolute Value Equation**

If , where c > 0, then:

* ax + b = c AND ax + b = - c

*Example:* Solve 

x=7 x= -2

*Solve for x.*

*  x= x=4 x=-4*

*x=-4*

* *

**1.6–Absolute Value Eqns. and Inequalities (Day 2)**

**Absolute Value Inequalities**;

The inequality, where c > 0, means that ax + b is between –c and c.

* If absolute value is Less THAN; “AND”

Therefore,

 is equivalent to –c < ax + b < c

The inequality, where c > 0, means that ax + b is beyond –c and c.

* If absolute value is GreatOR; “OR”

Therefore,

 is equivalent to ax + b < -c or ax + b > c

*< can be replaced by ≤ , and, > can be replaced by ≥*

*Examples:*

Rewrite the absolute value inequality as a compound inequality

 

Solve , and then graph the solution

Solve , and then graph the solution

Physicians consider an adult’s normal body temperature to be within 1° F of 98.6° F, inclusive. Write an absolute value inequality that describes the range of normal body temperatures

You are a quality control inspector at a bowling pin company. A regulation pin must weigh between 50 ounces and 58 ounces, inclusive. Write an absolute value inequality describing the weights you should reject.

**1.6 Extra Review**

**Steps to Solve an Absolute Value Equation/Inequality:**

1) Add, Subtract, Multiply or Divide to get the Absolute Value by itself

2) Follow steps for solving either absolute value equations or inequalities

3) Remember < = AND and > = OR

4) Warning: Distance cannot be negative.  and  has no solution

*Examples:*

*Solve each problem*

1.  2. 

3.  4. 

5.  6. 

7.  8. 

9. Some say that the perfect temperature for a hot tub is no more than 97 degrees F, plus or minus 1 degree. Write and solve an inequality describing the maximum and minimum temperatures for the perfect hot tub temperature.

10. A Thanksgiving turkey is ideally cooked when the stated temperature of the meat thermometer differs from the necessary temperature of 180 degrees F by no more than 5 degrees. Write and solve an equation to find the minimum and maximum temperature of a cooked turkey.

**Hmwk: pg 45 #1-7, 13-21 (odd), 27-31 (odd)**