SEW Math 090 | # Worksheet 1.3: Absolute Value Equations and Inequalities | **Summer 2016**

For exercises 1-6, solve the equations and the inequalities. For each inequality, express your answer as a graph and in interval notation.

1. $|x| = 3$ $\qquad$ $|x| < 3$ $\qquad$ $|x| > 3$

2. $|x| + 4 = 8$ $\qquad$ $|x| + 4 < 8$ $\qquad$ $|x| + 4 > 8$

3. $|w + 2| = 6$ $\qquad$ $|w + 2| < 6$ $\qquad$ $|w + 2| > 6$

4. $|z - 4| = -2$ $\qquad$ $|z - 4| < -2$ $\qquad$ $|z - 4| > -2$

5. $|x-6|+5=6$ $\qquad$ $|x-6|+5<6$ $\qquad$ $|x-6|+5>6$

6. $7|y+1|-3=11$ $\qquad$ $7|y+1|-3<11$ $\qquad$ $7|y+1|-3>11$

7. The width, w, of a bolt is supposed to be 2 cm, but it may have a 0.01-cm margin of error. Solve the inequality $|w-2| \leq 0.01$. What does the solution mean in this context?

8. A bag of potato chips states that its weight is $6\frac{3}{4}$ oz. The maximum measurement error is $\pm\frac{1}{8}$ oz. Write an absolute value inequality that represents the range for the weight, x, of the bag of ships.