

Algebra 1
1-7 Absolute Value Eqs/Ineqs

Name _____
Date _____ **A#15**

Goal: I can write and solve absolute value equations and inequalities

Warm Up: A cereal company produces a box of Math Flakes that weighs 18 oz. However, the company allows a little more or less product per box by about 0.5 oz. Why might they allow this tolerance? Write a compound inequality that describes the minimum and maximum amount of product per box.



Example 1: Solve each absolute value equation. What steps did you use?

a. $|x| = 4$

b. $|b| = -8$

Example 2: Solve each absolute value equation

a. $|d| + 5 = 13$

Steps to Solve Absolute Value EQUATION

1. Isolate _____
2. Split _____
3. Solve _____
4. Check _____

b. $|3c - 6| = 9$

c. $6 + |2 - 4x| = 16$

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Try It!

a. $|a| - 3 = 5$

b. $3|n| = 15$

c. $2|k| - 3 = -15$

d. $|7d| + 4 = 18$

e. $2|c - 2| + 1 = 9$

Example 3 - Application: A company makes 2-inch screws and allows for a tolerance of 0.1 in. Write an absolute value model that shows the shortest and longest screw lengths. Then solve to find the shortest and longest lengths allowed.

Try It! Write an absolute value equation model for the least and most amount of cereal in each box from the warm up. Solve the equation.

Algebra 1**1-7 Absolute Value Eqs/Ineqs****A#15****Example 4:** Solve and graph each absolute value inequality. Think about your steps.

a. $|f| < 4$

b. $|f| > 4$

Example 5: Solve each and graph the solutions.

a. $|y-5| \leq 2$

Steps to Solve Absolute Value INEQUALITIES

1. Isolate _____
2. Split _____
3. Solve _____
4. Check _____

b. $|y|-4 > 6$

c. $-4|g-7| \leq -16$

Algebra 1**1-7 Absolute Value Eqs/Ineqs****A#15**

Try It! Solve and graph each absolute value inequality.

a. $|x+5| > 9$

b. $3|c| + 2 \leq 17$

c. $-2|x+33| \leq -10$

d. $4 - |t+11| > -14$

Example 6 – Application: A student estimated the teacher’s age to be 40, give or take 3 years. Write an absolute value inequality that represents all the possible ages contained in the estimate. Solve and graph the solutions.