

Name _____ Date _____

Play Ball!

Absolute Value Equations and Inequalities

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1. The Billingsly Cookie Company is experimenting with a new low-fat cookie recipe. The management wants the bakers to come up with a cookie that is low in fat but still has good taste. The company decides on a target fat content of 5 grams per cookie. In order to be labeled low-fat, a difference of 1.8 grams per cookie is acceptable. This means the amount of fat should be no more than 1.8 grams above 5 or no more than 1.8 grams below 5.
 - a. Write an expression that represents the difference between the fat in a cookie from the new recipe and the target fat content. Use f to represent the amount of fat in a cookie from the new recipe.
 - b. Write an absolute value inequality to represent the restrictions on the difference in the amount of fat.
 - c. One of the bakers creates a cookie recipe that has 6.5 grams of fat per cookie. Is this recipe acceptable? Explain your reasoning.
 - d. Another baker comes up with a cookie recipe that has 2.9 grams of fat per cookie. Is this recipe acceptable? Explain your reasoning.

- e. Algebraically determine the greatest and least number of grams of fat a cookie can contain and still fall within the required specifications. Write your answer as an inequality.

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2. Shaderra is on a diet, so she is keeping track of the number of calories she eats each day. She is trying to eat 2000 calories a day but allows for a difference of 40 calories. She has already consumed all but 140 of her allotted calories today and is in the mood for a snack. She knows that each of the new low-fat cookies she loves has 20 calories.
- a. Write an expression that represents the difference between the amount of calories that will result from eating x number of cookies and the remaining calories Shaderra can consume today.
- b. Write a linear absolute value equation that represents the allowable amount of calories she can consume today.
- c. Determine the minimum and maximum number of cookies she can eat and still stay within an acceptable difference from her daily calorie count.