NAME

DATE

Module 6 Solving Absolute Value Equations and Inequalities

Lesson 5 Solving Problems Using Absolute Value Equations and Inequalities

independent practice

Write an absolute value equation or inequality to model the given situation, then solve.

1. A researcher believes that a safe daily intake of Vitamin C should not vary more than 220 mg from the recommendation of 280 mg. What is the range of safe daily Vitamin C intakes?

2. Peter has found that if he maintains good eating and exercise habits, his weight varies by at most 4 lb from 174 lb. What is the range of Peter's weight if he maintains good eating and exercise habits?

3. A survey of a large company's employees had a 6% margin of error. If the survey showed that 22% of the employees approved of a new healthcare plan, what are the maximum and minimum possible actual percents?

4. A political poll with a margin of error of 3.5% showed that a politician has a 72% approval rating. What is the minimum possible actual approval rating?

5. For a certain recipe, a cook selects shrimp so that there are 20 shrimp to a pound. If the actual number of shrimp in 1 pound is more than three away from 20, the cook will not use them for this recipe. What number of shrimp per pound will the cook not use for this recipe?

6. At a factory, a machine extrudes plastic straws and cuts them to an ideal length of 9.25 in. An inspector rejects any straw whose length is at least 0.05 in. away from the ideal length. What lengths of straws will be rejected?
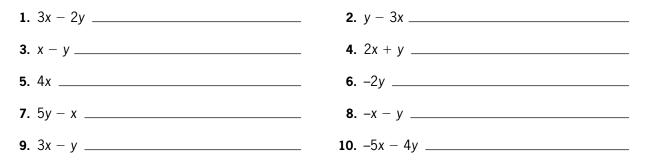
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Journal

1. Make a list of key words and phrases indicating whether the symbol "≤" or "<" should be used. Give examples of sentences using each key word or phrase.
2. Make a list of key words and phrases indicating whether the symbol "≥" or ">" should be used. Give examples of sentences using each key word or phrase.
3. Represent the following statement on a number line:
   The distance from x to 4 is less than 7.
   What absolute value inequality does the statement represent? What conjunction inequality does the graph show? Explain.
4. What is the solution to the absolute value inequality $|x - 7| < -2$? Explain using the idea of distance.
5. In a mayoral race, there are 2 candidates. A poll shows that 53% of voters plan to vote for Roberts, and 48% plan to vote for Sharpson. The poll has a margin of error of 4%. Should the Roberts campaign be celebrating? Explain.

Cumulative Review

Evaluate each expression for $x = -2$ and $y = 4$.

1. $3x - 2y$ _____

2. $y - 3x$ _____

3. $x - y$ _____

4. $2x + y$ _____

5. $4x$ _____

6. $-2y$ _____

7. $5y - x$ _____

8. $-x - y$ _____

9. $3x - y$ _____

10. $-5x - 4y$ _____

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