NAME _____ DATE _____ PERIOD _____

1-4 Skills Practice

Solving Absolute Value Equations

Evaluate each expression if $w = 0.4$, $x = 2$, $y = -3$, and $z = -10$.

1. $|5w|$

2. $|-9y|$

3. $|9y - z|$

4. $-|17z|$

5. $-|10z - 31|$

6. $-|8x - 3y| + |2y + 5x|$

7. $25 - |5z + 1|$

8. $44 + |-2x - y|$

9. $2|4w|$

10. $3 - |1 - 6w|$

11. $|-3x - 2y| - 4$

12. $6.4 + |w - 1|$

Solve each equation. Check your solutions.

13. $|y + 3| = 2$

14. $|5a| = 10$

15. $|3k - 6| = 2$

16. $|2g + 6| = 0$

17. $10 = |1 - c|$

18. $|2x + x| = 9$

19. $|p - 7| = -14$

20. $2|3w| = 12$

21. $|7x - 3x| + 2 = 18$

22. $4|7 - y| - 1 = 11$

23. $|3n - 2| = \frac{1}{2}$

24. $|8d - 4d| + 5 = 13$

25. $-5|6a + 2| = -15$

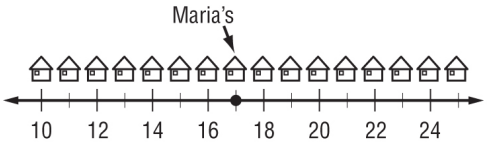
26. $|k| + 10 = 9$

NAME _____ DATE _____ PERIOD _____

1-4 Word Problem Practice

Solving Absolute Value Equations

1. LOCATIONS Identical vacation cottages, equally spaced along a street, are numbered consecutively beginning with 10. Maria lives in cottage #17. Joshua lives 4 cottages away from Maria. If n represents Joshua's cottage number, then $|n - 17| = 4$. What are the possible numbers of Joshua's cottage?



2. HEIGHT Sarah and Jessica are sisters. Sarah's height is s inches and Jessica's height is j inches. Their father wants to know how many inches separate the two. Write an equation for this difference in such a way that the result will always be positive no matter which sister is taller.

3. AGES In 2005, 24.8% of all Americans were under 18 years old. Rhonda conducts a survey of the ages of students in eleventh grade at her school. On November 1, she finds the average age is 200 months. She also finds that two–thirds of the students are within 6 months of the average age. Write and solve an equation to determine the age limits for this group of students. How many months will it be until the first of these students turn 18?

4. TOLERANCE Martin makes exercise weights. For his 10-pound dumbbells, he guarantees that the actual weight of his dumbbells is within 0.1 pound of 10 pounds. Write and solve an equation that describes the minimum and maximum weight of his 10-pound dumbbells.

5. WALKING Jim is walking along a straight line. An observer watches him. If Jim walks forward, the observer records the distance as a positive number, but if he walks backward, the observer records the distance as a negative number. The observer has recorded that Jim has walked a, then b, then c feet.

a. Write a formula for the total distance that Jim walked.

b. The equation you wrote in part **a** should not be $T = |a + b + c|$. What does $|a + b + c|$ represent?

c. When would the formula you wrote in part **a** give the same value as the formula shown in part **b**?