

Practice 4-6

Absolute Value Equations and Inequalities

Solve each inequality. Graph the solution.

1. $|d| > 2$
2. $|h| > 6$
3. $|2k| > 8$
4. $|s + 4| > 2$
5. $|3c - 6| \geq 3$
6. $|2n + 3| \leq 5$
7. $|3.5z| > |7|$
8. $\left|\frac{2}{3}x\right| \leq 4$
9. $9 > |6 + 3t|$
10. $|j| - 2 \geq 6$
11. $5 > |v + 2| + 3$
12. $|4y + 11| < 7$
13. $|2n - 1| \geq 1$
14. $\left|\frac{1}{2}x + 1\right| > 1$
15. $-2|h - 2| > -2$
16. $3|2x| \leq 12$
17. $3|s - 4| + 21 \leq 27$
18. $-6|w - 3| < -24$
19. $-\frac{1}{2}|6x - 3| \leq -\frac{3}{2}$
20. $-2|3j| - 8 \leq -20$

Solve each equation. If there is no solution, write *no solution*.

21. $|a| = 9.5$
22. $|b| = -2$
23. $|d| - 25 = -13$
24. $|6z| + 3 = 21$
25. $|3c| - 45 = -18$
26. $-2 = -\frac{|z|}{7}$
27. $|x| = -0.8$
28. $-4|7 + d| = -44$

Write and solve an absolute value equation or inequality that represents each situation.

29. The average number of cucumber seeds in a package is 25. The number of seeds in the package can vary by three. Find the range of acceptable numbers of seeds in each package.
30. The mean distance of the earth from the sun is 93 million miles. The distance varies by 1.6 million miles. Find the range of distances of the earth from the sun.
31. Leona was in a golf tournament last week. All four of her rounds of golf were within 2 strokes of par. If par was 72, find the range of scores that Leona could have shot for each round of the golf tournament.
32. Victor's goal is to earn \$75 per week at his after-school job. Last month he was within \$6.50 of his goal. Find the range of amounts that Victor might have earned last month.
33. Members of the track team can run 400 m in an average time of 58.2 s. The fastest and slowest times vary from the average by 6.4 s. Find the range of times for the track team.
34. The ideal length of a particular metal rod is 25.5 cm. The measured length may vary from the ideal length by at most 0.025 cm. Find the range of acceptable lengths for the rod.
35. When measured on a particular scale, the weight of an object may vary from its actual weight by at most 0.4 lb. If the reading on the scale is 125.2 lb, find the range of actual weights of the object.
36. One poll reported that the approval rating of the job performance of the President of the United States was 63%. The poll was said to be accurate to within 3.8%. What is the range of actual approval ratings?