

NAME _____

DATE _____

Module Test **A**

Module 6

Solve.

1. $|x| = 4$ $x = 4$ or $x = -4$ _____
 2. $|x| \geq -3$ \mathfrak{R} _____
 3. $|q| \leq 6$ $-6 \leq q \leq 6$ _____
 4. $|b| = -3$ \emptyset _____
 5. $|n| < -3$ \emptyset _____
 6. $|k - 4| < 3$ $1 < k < 7$ _____
 7. $|-9p| \leq 54$ $-6 \leq p \leq 6$ _____
 8. $|d| \geq 0$ \mathfrak{R} _____
 9. $|m - 2| = 4$ $m = 6$ or $m = -2$ _____
 10. $|4 - 2p| = 2$ $p = 1$ or $p = 3$ _____
 11. $\frac{|z|}{3} - 6 < 10$ $-48 < z < 48$ _____
 12. $|-6y| = 18$ $y = 3$ or $y = -3$ _____
 13. $|j| - 3 = 0$ $j = 3$ or $j = -3$ _____
 14. $8 = -2|x|$ \emptyset _____
 15. $|r - 5| + 3 = 5$ $r = 3$ or $r = 7$ _____
 16. $|h - 5| > 7$ $h > 12$ or $h < -2$ _____
 17. $-2|w - 2| + 6 = 2$ $w = 4$ or $w = 0$ _____
 18. $-8 + |4x - 2| < 10$ $-4 < x < 5$ _____
 19. $8 \leq |2h + 2|$ $h \geq 3$ or $h \leq -5$ _____
 20. $|6p - 2| > 0$ $p \neq \frac{1}{3}$ _____
 21. $\frac{|z|}{4} - 3 > -1$ $z > 8$ or $z < -8$ _____
22. At a commercial bakery, a machine scoops cookie dough from a mixing bowl and moves it to a baking tray. To bake properly, cookies must be formed from scoops of dough that do not vary by more than 3 grams from the ideal size of 29 grams. What are the maximum and minimum weights of an acceptable scoop of dough?
- maximum weight: 32 grams** _____
- minimum weight: 26 grams** _____
23. A pizza delivery service asks that each driver record the time that elapsed between the telephone order and the delivery to the customer. Store managers compile the data and must report any elapsed time that varies by more than 7 minutes from the ideal of 30 minutes.
- A. Write an absolute value equation or inequality to describe the times which the manager must report.
- $|t - 30| > 7$** _____

B. Explain what the variable represents in your answer to A.

t represents delivery times recorded by the drivers.

C. Solve the inequality. Show all steps.

$$|t - 30| > 7$$

$$t - 30 > 7 \quad \text{or} \quad t - 30 < -7$$

$$\begin{array}{r} + 30 \quad + 30 \\ \hline t > 37 \end{array} \quad \text{or} \quad \begin{array}{r} + 30 \quad + 30 \\ \hline t < 23 \end{array}$$

D. Graph the solution you found in part C.



E. What inequality shows all the delivery times for which a driver does *not* have to file a report? Explain the inequality in the context of a number line.

The inequality $|t - 30| \leq 7$ shows the delivery times for which no report is necessary. For t to be a solution to this inequality, the difference between t and 30 must be less than or equal to 7 minutes.