

ABSOLUTE VALUE INEQUALITIES Graphing an absolute value inequality is similar to graphing a linear inequality, but the boundary is an absolute value graph.

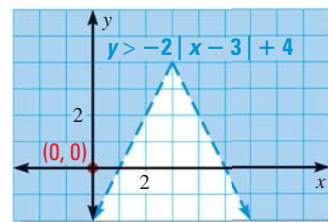
EXAMPLE 5 Graph an absolute value inequality

Graph $y > -2|x - 3| + 4$ in a coordinate plane.

Solution

STEP 1 Graph the equation of the boundary, $y = -2|x - 3| + 4$. Use a dashed line because the inequality symbol is $>$.

STEP 2 Test the point $(0, 0)$. Because $(0, 0)$ is a solution of the inequality, shade the portion of the coordinate plane outside the absolute value graph.



GUIDED PRACTICE for Examples 4 and 5

11. **WHAT IF?** Repeat the steps of Example 4 if each student group is allotted up to 420 MB of video space.

Graph the inequality in a coordinate plane.

12. $y \leq |x - 2| + 1$ 13. $y \geq -|x + 3| - 2$ 14. $y < 3|x - 1| - 3$

2.8 EXERCISES

HOMEWORK KEY

- = **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 15, 25, and 45
 = **TAKS PRACTICE AND REASONING** Exs. 21, 28, 39, 41, 46, 48, 50, and 51

SKILL PRACTICE

- VOCABULARY** Copy and complete: The graph of a linear inequality in two variables is a(n) ?
- WRITING** Compare the graph of a linear inequality in two variables with the graph of a linear equation in two variables.

CHECKING SOLUTIONS Tell whether the given ordered pairs are solutions of the inequality.

- $x > -7$; $(0, 10)$, $(-8, -5)$
- $y \geq -2x + 4$; $(0, 4)$, $(-1, 8)$
- $y \leq -5x$; $(3, 2)$, $(-2, 1)$
- $2x - y < 3$; $(0, 0)$, $(2, -2)$

GRAPHING INEQUALITIES Graph the inequality in a coordinate plane.

- $x < 3$
- $x \geq 6$
- $y > -2$
- $-2y \leq 8$
- $y \leq -2x - 1$
- $y < 3x + 3$
- $y > \frac{3}{4}x + 1$
- $y \geq -\frac{2}{3}x - 2$
- 15.** $2x + y < 6$
- $x + 4y > -12$
- $3x - y \geq 1$
- $2x + 5y \leq -10$

EXAMPLE 1
on p. 132
for Exs. 3–6

EXAMPLES 2 and 3
on p. 133
for Exs. 7–20