2 CHAPTER REVIEW

2.7 Use Absolute Value Functions and Transformations

pp. 123–129

EXAMPLE

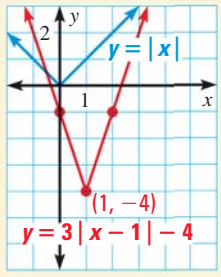
Graph $y = 3|x - 1| - 4$. Compare the graph with the graph of $y = |x|$.

STEP 1 **Identify** and plot the vertex, $(h, k) = (1, -4)$.

STEP 2 **Plot** another point on the graph, such as $(0, -1)$. Use symmetry to plot a third point, $(2, -1)$.

STEP 3 **Connect** the points with a V-shaped graph.

STEP 4 **Compare** with $y = |x|$. The graph of $y = 3|x - 1| - 4$ is the graph of $y = |x|$ stretched vertically by a factor of 3, then translated right 1 unit and down 4 units.



EXERCISES

EXAMPLES 1, 2, 3, and 4 on pp. 123–125 for Exs. 24–27

Graph the function. *Compare* the graph to the graph of $y = |x|$.

24. $y = |x - 3| + 2$ **25.** $y = \frac{3}{4}|x|$ **26.** $f(x) = -4|x + 2| + 3$

27. FINANCE Analysts predict that a company will report earnings of \$1.50 per share in the next quarter. The function $d = |a - 1.50|$ gives the absolute difference d between the actual earnings a and the predicted earnings. Graph the function. For what value(s) of a will d be \$.25?

2.8 Graph Linear Inequalities in Two Variables

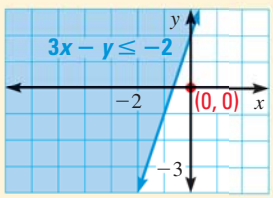
pp. 132–138

EXAMPLE

Graph $3x - y \leq -2$ in a coordinate plane.

STEP 1 **Graph** the boundary line $3x - y = -2$. Use a solid line because the inequality symbol is $\leq$.

STEP 2 **Test** the point $(0, 0)$. Because $(0, 0)$ is *not* a solution of the inequality, shade the half-plane that does not contain $(0, 0)$.



EXERCISES

EXAMPLES 2, 3, and 4 on pp. 132–134 for Exs. 28–34

Tell whether the given ordered pair is a solution of the inequality.

28. $-y \leq 5x$; $(0, 1)$ **29.** $y > -3x - 7$; $(-4, 6)$ **30.** $3x - 4y < -8$; $(-2, 0)$

Graph the inequality in a coordinate plane.

31. $-4y < 16$ **32.** $y - 2x > 8$ **33.** $12x - 8y \leq 24$

34. WIND ENERGY An electric company buys energy from "windmill farms" that have windmills of two sizes, one producing 1.5 megawatts of power and one producing 2.5 megawatts of power. The company wants a total power supply of at least 180 megawatts. Write and graph an inequality describing how many of each size of windmill it takes to supply the electric company.