Write the linear inequality whose graph is the shaded region.

Graph each linear inequality.

37. \( y > x + 2 \)  
38. \( y \leq x + 2 \)  
39. \( y \geq x - 1 \)  
40. \( y < x - 1 \)  
41. \( y > x \)  
42. \( y - 2x < 4 \)  
43. \( 2x + y > 4 \)  
44. \( x - 2y + 2 \leq 0 \)  
45. \( 2y + x - 4 < 0 \)  
46. \( 3y + x + 6 \geq 0 \)

Written Assignment: Describe at least one example, other than the postage function, of a step function that can be found in everyday life. Explain your answer.

CHALLENGE
Think Creatively

Graph \( y = |x| \) and \( y = [-x] \). For what values of \( x \) are the two equal to each other?

2.5
SYSTEMS OF LINEAR EQUATIONS

Any two nonparallel lines in a plane intersect in exactly one point. One of our objectives will be to find the coordinates of this point using the equations of the lines. Here, for example, is a system of two linear equations in two variables and their graphs, drawn in the same coordinate system.

The coordinates of the point of intersection \( P \) could be estimated by careful inspection of the graph. However, to find the exact coordinates requires algebraic procedures. These coordinates are called the solution of the system of equations.

\[
\begin{align*}
2x + 3y &= 12 \\
3x + 2y &= 12
\end{align*}
\]