A TEACHER REFLECTS

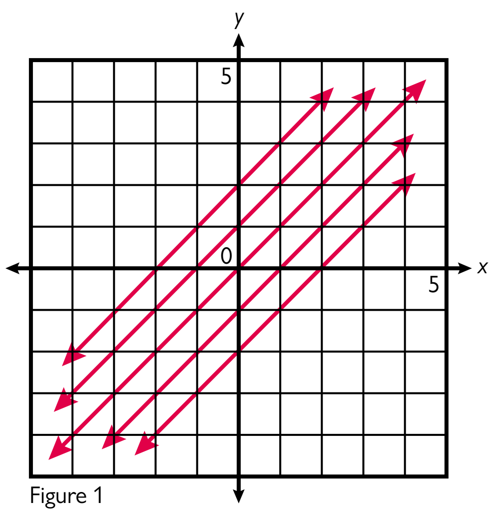

Figure 1

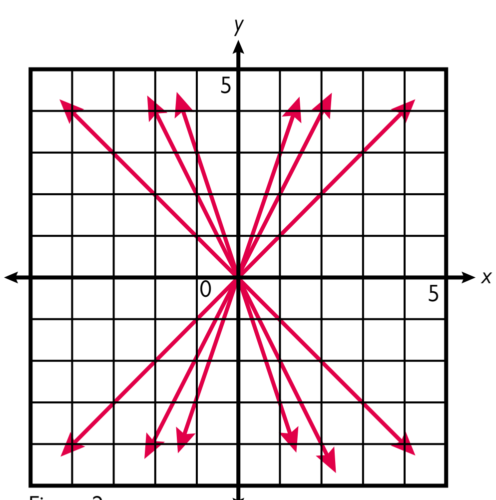

Figure 2

Working with Coordinate Graphs

When we began Lesson 5, some students kept forgetting that the x-value always comes first in an ordered pair. I explained that this was simply a convention that had become standardized over time. I reminded students that the first number of an ordered pair tells you how far to move left or right, and the second number tells you how far to move up or down. I asked the class if anyone knew a good way to remember this. **Luis** shared something he learned in a previous class: "You have to walk before you can fly!" This really helped students remember that ordered pairs are truly ordered!

When students plotted points and graphed equations in Lesson 5, I had them make their graphs on transparencies of Reproducible R10. This had many unforeseen benefits. After everyone had individually presented the graphs of their equations, I collected and stacked all of the transparencies. This resulted in a series of parallel lines (Figure 1).

I asked students what they noticed. After observing that all of the lines were parallel, I asked students what else they could say. **Shonda** made an observation about where the lines crossed the y-axis: "If the equation is $y = x + 1$, the line crosses the y-axis at 1; if the equation is $y = x + 2$, the line crosses the y-axis at 2. The equation $y = x$ doesn't have anything added or subtracted at the end, so the line crosses the y-axis at 0." I thought this was a nice preview of the idea of an intercept.

Stacking the transparencies was so successful, I asked my class to try this again with new equations. This time, I gave each group of students one equation of the form $y = ax$. (I included both positive and negative values for a.) I had each group plot points and make a graph of their equation. Then I collected the transparencies.

Before displaying the stacked transparencies, I asked the class if they had any guesses about what we would see. **Steve** guessed that all the lines would be parallel, but this time they would slant downward. Based on his guess, I could tell that Steve's group probably graphed one of the equations in which a was negative!

This set of lines all went through the origin (Figure 2). Again, I asked for observations, and **Linda** said, "The equations with a minus sign all slant downwards and the ones like $y = 2x$ or $y = 3x$ all slant upwards." I felt like students would really remember this experience when they studied slopes and intercepts in future courses.