Beat the System

This activity will help students learn about systems of equations. Students will match pairs of graphs to systems of equations. They will also write equations of lines to fit a type of system of equations.

System of equations:

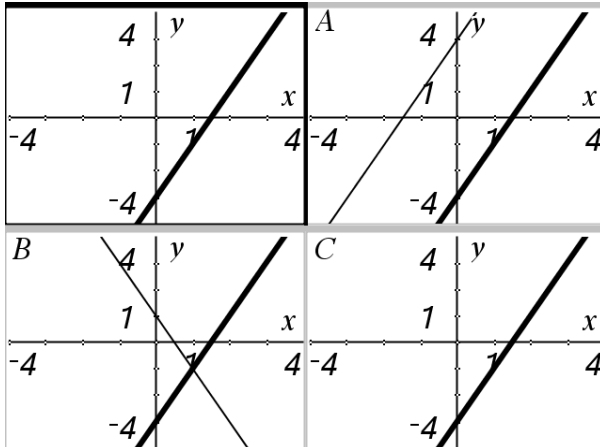There are three possible solutions to a system of equations.

1. One Solution
2. No Solutions
3. Infinite Solutions

Question

What do you think is the difference between the three types of solutions? Compare your answer with others in your group.

Answer

On the next page you will see four graphs. The first is a line and the other three are one example of each type of system. The four graphs are shown on the same scale.

Which type of system is graph A?

Which type of system is graph B?

Which type of system is graph C?

Question

Do any of the graphs show parallel lines? What do you know about parallel lines?

Answer ⌄⌄

Question

Do any of these graphs show lines that intersect? What do you know about lines that intersect?

Answer ⌄⌄

Question

What do you notice about graph C? There are two equations graphed. Explain.

Answer ⌄⌄

The next few pages will give you an opportunity to write equations to match a particular type of system.

Type an equation of a line into f2(x) that is parallel to the shown at the left.

$$y=\frac{2}{3}x+3$$

Graph axis labels: 10, y, 2, -5, 1, 5

f2(x)= ⌃⌃

Problem 2:

Problem 3:

10 *y*

2

-5   1   5

$f2(x)=$

Type an equation of a line into f2(x) that intersects the line shown at the left.

Problem 4:

10 *y*

2

-5   1   5

$f2(x)=$

Type an equation of a line into f2(x) that gives an infinite solution to the system.

What do you notice when the line in f2(x) is graphed?

Can you summarize the three different types of systems of equations?