

Modeling Activity

(Use with Lesson 8-2)

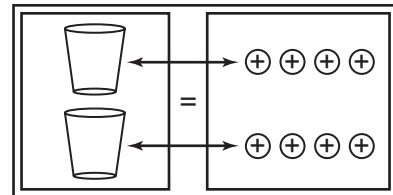
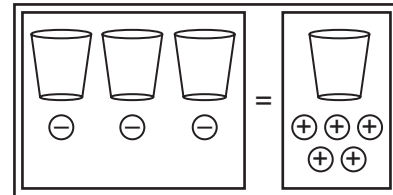
Solving Systems of Equations

Materials: cups , counters , equation mat 

You can use an equation model to solve systems of equations.

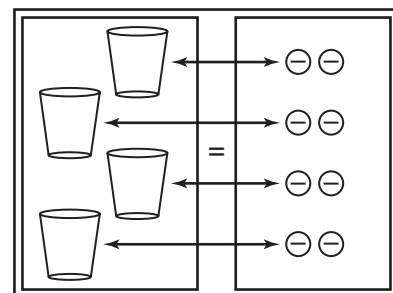
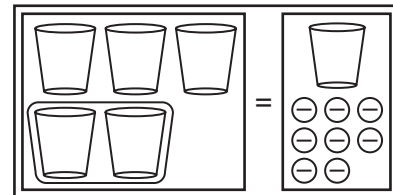
Activity 1: Use cups and counters to solve the system of equations. $y = 3x - 3$
 $y = x + 5$

- ▶ Since both $3x - 3$ and $x + 5$ equal y , model $3x - 3$ on one side of the equation mat and $x + 5$ on the other side of the equation mat.
- ▶ Add 3 positive counters on each side. Group the counters to form zero pairs and remove all zero pairs. Also remove a cup from each side.
- ▶ Separate the remaining counters into 2 equal groups to correspond to the 2 cups. The value of x is 4. Since $y = 3x - 3$, $y = 3(4) - 3$ or 9. The solution is $(4, 9)$.



Activity 2: Use cups and counters to solve the system of equations. $y = 2x$
 $3x + y = x - 8$

- ▶ Model the equation $3x + y = x - 8$ on the equation mat by using a cup to represent each x . Since $y = 2x$, represent y by using 2 cups.
- ▶ Remove a cup from each side. Separate the counters into 4 equal groups to correspond to the 4 cups. The value of x is -2 . Since $y = 2x$, $y = 2(-2)$ or -4 . The solution is $(-2, -4)$.



MODEL

Use an equation model to solve each system of equations.

1. $y = 2x + 8$
 $y = 3x + 5$ **(3, 14)**
2. $y = x - 6$
 $y = 4x - 3$ **(-1, -7)**
3. $y = 4x + 5$
 $y = 2x - 1$ **(-3, -7)**
4. $y = 3x$
 $2x + y = 10$ **(2, 6)**
5. $y = x + 2$
 $3x + y = 14$ **(3, 5)**
6. $2x + y = 7$
 $y = 2x - 1$ **(2, 3)**