NAME _____ DATE _____

(Use with Lesson 8-2)

Modeling Activity

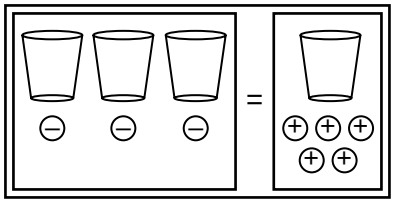
Solving Systems of Equations

Materials: cups, counters, equation mat

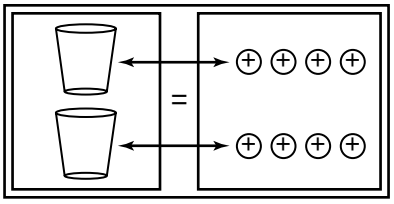
You can use an equation model to solve systems of equations.

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.



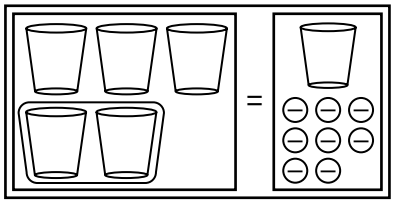
- Add 3 positive counters on each side. Group the counters to form zero pairs and remove all zero pairs. Also remove a cup from each side.



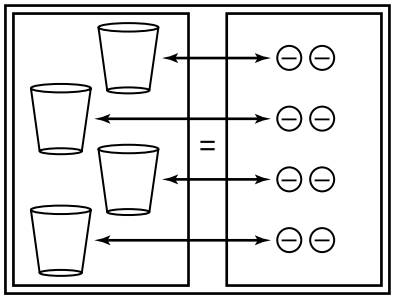
- Separate the remaining counters into 2 equal groups to correspond to the 2 cups. The value of x is 4. Since $y = 3x - 3$, $y = 3(4) - 3$ or 9. The solution is (4, 9).

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. $y = 2x + 8$, $y = 3x + 5$

2. $y = x - 6$, $y = 4x - 3$

3. $y = 4x + 5$, $y = 2x - 1$

4. $y = 3x$, $2x + y = 10$

5. $y = x + 2$, $3x + y = 14$

6. $2x + y = 7$, $y = 2x - 1$