

Hands-On Activity 2

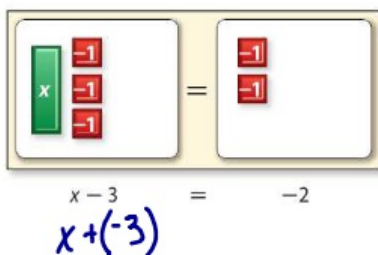


Solve $x - 3 = -2$ using algebra tiles.

$$x + (-3) = -2$$

Remember a 1-tile and -1 tile combine to make a zero pair. You can add or subtract zero pairs from either side of an equation without changing its value.

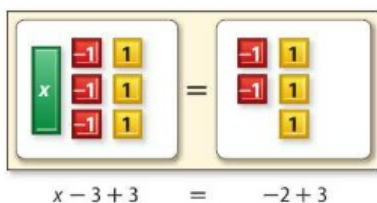
Step 1 Model the equation.



CANCEL OUT
ZERO PAIR
 $1 + (-1) = 0$

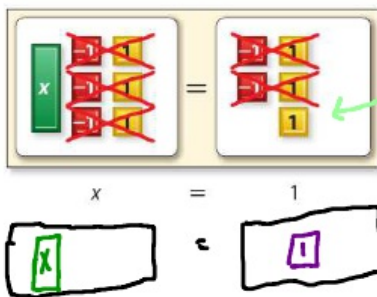


Step 2 Add three 1-tiles to the left side of the mat and _____ 1-tiles to the right side of the mat to form zero pairs on each side of the mat.



$$\begin{array}{r} x + (-3) = -2 \\ +3 \quad +3 \\ \hline x = 1 \end{array}$$

Step 3 Remove all of the zero pairs from each side. There is _____ 1-tile on the right side of the mat.



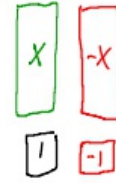
Therefore, $x = \square$.

Check $\square - 3 = -2 \checkmark$



Investigate

CCSS Use Math Tools Work with a partner to solve each equation. Use algebra tiles. Show your work using drawings.

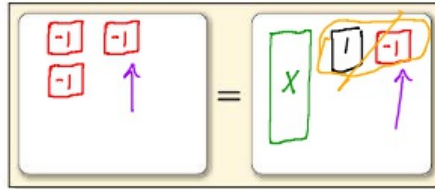
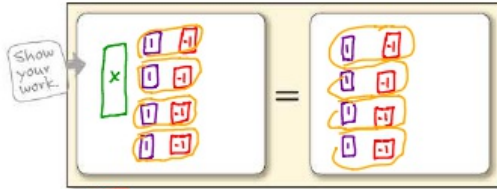


5. $x + 4 = 4$

$x = 0$

6. $-2 = x + 1$

$x = -3$



CHECK
 $-2 = x + 1$
 $-2 = -3 + 1$
 $-2 = -2$ ✓

$x + (-1) = -3$

7. $x - 1 = -3$

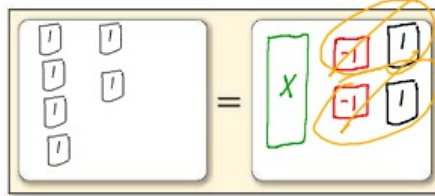
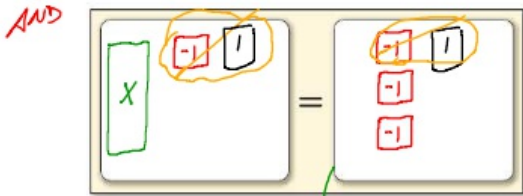
$x = -2$

$4 = x + (-2)$

8. $4 = x - 2$

$x = 6$

CHECK
 $4 = x - 2$
 $4 = 6 - 2$
 $4 = 4$ ✓



Analyze and Reflect

Work with a partner to complete the table. The first one is done for you.

CHECK
 $x - 1 = -3$
 $-2 - 1 = -3$
 $-2 + (-1) = -3$
 $-3 = -3$

	Equation	Related Equation
	$x + 3 = 4$	$x = 4 - 3$
9.	$6 + x = 10$	
10.	$x + 3 = -1$	
11.	$6 + x = -7$	



Create

12. **CCSS Construct an Argument** Write a rule that you can use to solve addition equations without using models or a drawing.

13. **Inquiry** HOW can bar diagrams or algebra tiles help you solve an equation?
