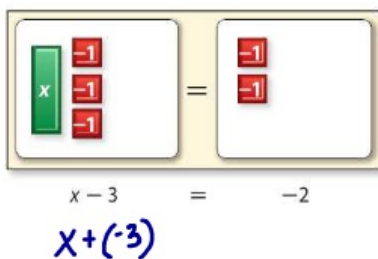# Hands-On Activity 2

Solve $x - 3 = -2$ using algebra tiles.
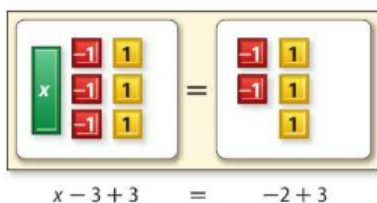
[handwritten: $x + (-3) = -2$]

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.
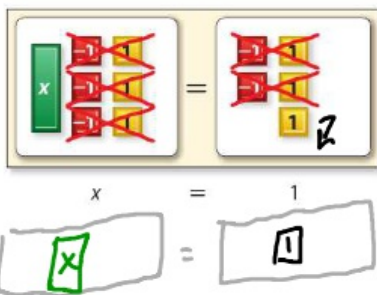
Step 1 Model the equation.

$$x - 3 \quad = \quad -2$$

[handwritten: $X + (-3)$]

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.

$$x - 3 + 3 \quad = \quad -2 + 3$$

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

$$x \quad = \quad 1$$

Therefore, $x = \boxed{}$.

Check $\boxed{} - 3 = -2$ ✓

[handwritten right margin:
CANCEL EACH OTHER OUT
ZERO PAIR
⊕ ⊖
X -X
1 -1

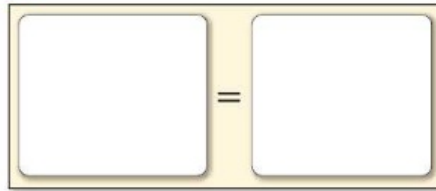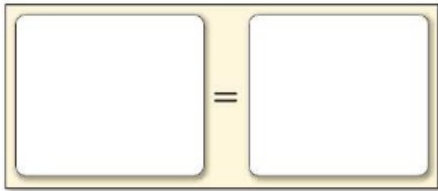*$X + (-3) = -2$*
$+ 3 \qquad +3$
$X = 1$
$1 + (-3) = -2$
:)]

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

Show your work.

6. $-2 = x + 1$ $x =$ ___
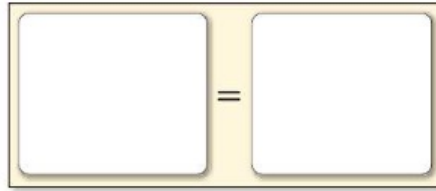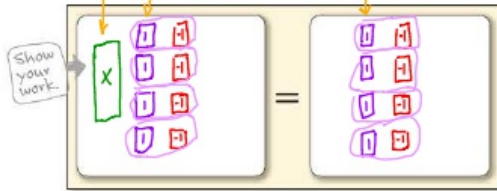
7. $x - 1 = -3$ $x =$ ___

8. $4 = x - 2$ $x =$ ___

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

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

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?

_____

_____