3.2 CA *Two Step Equations*

1.

$$7 - 3b = 1$$

$$7 + -3b = 1$$

$$\boxed{} \qquad \boxed{}$$

$$\boxed{} = \boxed{}$$

$$\boxed{} \qquad \boxed{}$$

$$b = \boxed{}$$

Use the rules for subtracting integers. Change subtraction to addition and change the sign of the second term to it's opposite.

Subtract $\boxed{}$ to each side.

Simplify.

Divide each side by $\boxed{}$

Simplify.

✓ $7 - 3b = 1$

2.

$$21 = -p + 8.$$

$$-\boxed{} \qquad -\boxed{}$$

$$= -p$$

$$13 = (-p)$$

$$\boxed{} \qquad \boxed{}$$

$$= p$$

Subtract $\boxed{}$ from each side.

Simplify.

Divide each side by $\boxed{}$

Simplify.

Check $21 = -p + 8$

$$21 \overset{?}{=} -\left(\boxed{} \right) + 8$$

$$21 = \boxed{}$$

Solve each equation. Show your check.		
3. $\dfrac{x}{2} - 5 = 15$ Do | Undo ✓	**4** $2x + 3 = 15$ Do | Undo ✓	
3. $6 + 5x = 31$ Do | Undo ✓	**4.** $144 = -12(x + 5)$ Do | Undo ✓	
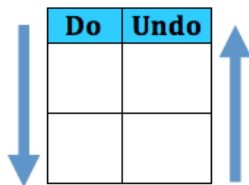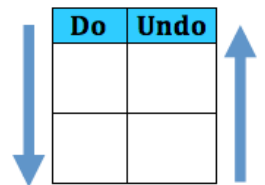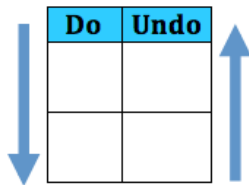
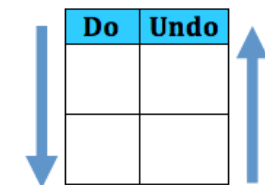|	
5. $\dfrac{x+7}{2} = 5$ ✓	7. $19 = -4x - 5$ ✓
8. $3x - 5 = -23$ ✓	9. $4 - x = 14$ ✓
10. $4 + \dfrac{y}{2} = 8$ ✓	11. $7 - 8k = 23$ ✓

Complete the following algebraic proofs using the reasons above. If a step requires simplification by combining like terms, write simplify.

12.

Statements	Reasons
$3(x+2) + 1 = 8$	Given
$3x + 6 + 1 = 8$	3) __?__
$3x + 7 = 8$	4) __?__
$3x = 1$	5) __?__
$x = \frac{1}{3}$	6) __?__

Solve each equation. (Make sure to combine like terms)

13. $5x - 2 + 3x = 14$

14. $9 = 3 - 4x + 6x$

15. $7x - 2 - 5x + 8 = 30$

**Translate each sentence into an equation. Then find each number.**

16. The product of 6 and the quantity x plus 3 is -12.

17. Eight less than triple x is seventeen.

Write and Solve an equation to find each unknown.

18. Kelly ate 7 more mini-cookies then Cheryl on Saturday. The two women ate 13 mini-cookies in total. How many mini-cookies did Cheryl eat on Saturday?	19. One blue bar equals how many yellow squares?
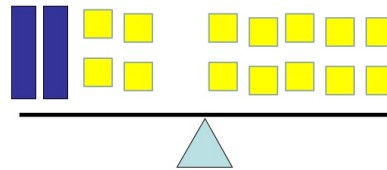
20. The length of a rectangle is 3 inches more than the width. The perimeter is 78 inches. Find the length and width.

21. The sum of 3 consecutive integers is -99. What are the integers?

22. **CRITICAL THINKING** If you begin with an even integer and count by two, you are counting *consecutive even integers*. Write and solve an equation to find two consecutive even integers whose sum is 50.

23. The sum of 3 consecutive odd integers is -159. What are the integers?