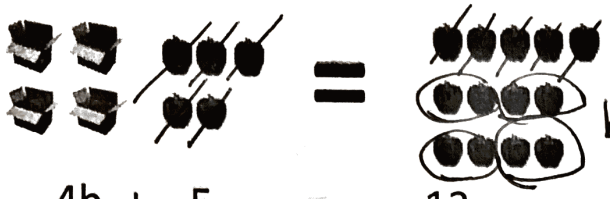
Exploration: Variables on Both Sides of an Equation

INSTRUCTIONS: For each problem, figure out how many apples would have to go in each box to make both sides equal. **You must show your answer using the diagram AND using the equation.**

1) 

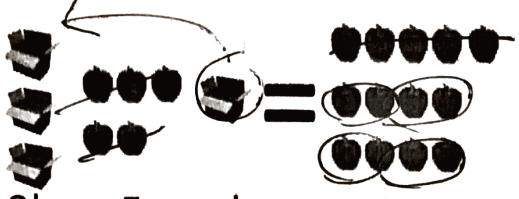
$4b + 5 = 13$

$-5 \quad -5$

$\frac{4b}{4} = \frac{8}{4}$

$b = 2$

$b=2$

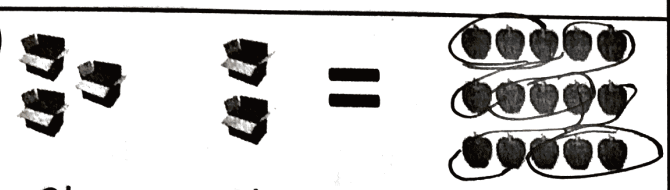
2) 

$3b + 5 + b = 13$

$4b + 5 = 13$

$4b = 8$

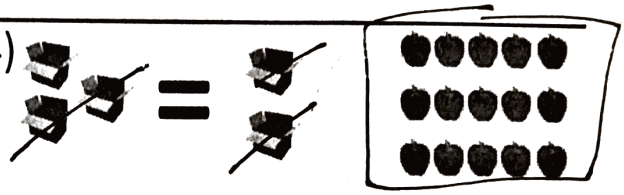
$b = 2$

3) 

$3b + 2b = 15$

$\frac{5b}{5} = \frac{15}{5}$

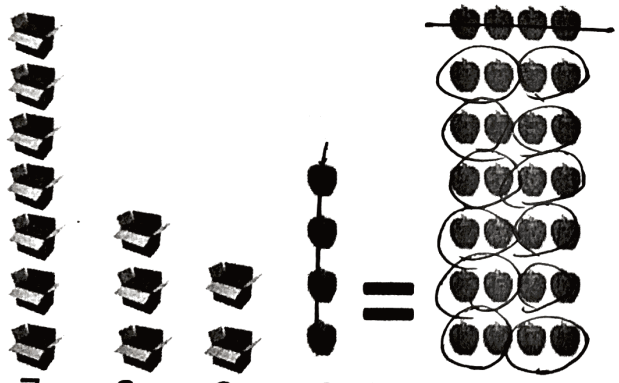
$b = 3$

4) 

$3b = 2b + 15$

$-2b \quad -2b$

$b = 15$

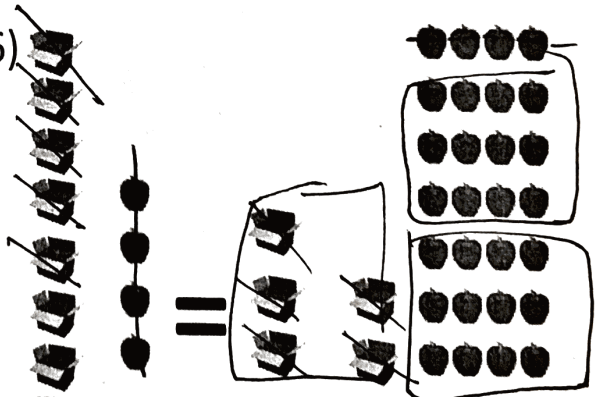
5) 

$7x + 3x + 2x + 4 = 28$

$-4 \quad -4$

$12x = 24$

$x = 2$

6) 

$7x + 4 = 3x + 2x + 28$

$-4 \quad -4$

$7x = 3x + 2x + 24$

$7x = 5x + 24$

$2x = 24$

$x = 12$

7) If 2 terms with a variable are on the **same side** of an equation, what should you do?

Combine like terms

8) If 2 terms with a variable are **not** on the same side of an equation, what should you do?

add/subtract from both sides