**Write Equations with Variables on Both Sides**

| Scenario | Define Variable | Write Equation |
|---|---|---|
| A t-shirt company's costs include a fixed overhead charge of $300 plus $2 for every t-shirt they sell. Their sales are $8 per t-shirt. How many t-shirts must they sell in order for their costs to equal their revenue? | | |
| Sam's gym has a registration fee of $10, plus he pays $3 for every visit. Ciara's gym has a registration fee of $14, but she only pays $1 for every visit. After how many visits would Sam and Ciara have spent the same amount on their gym memberships? | | |
| Trey has $50 in his bank account and earns $10 per hour at his job. Briana has $80 in her bank account and earns $7 per hour at her job. If they both deposit all their earnings into their bank accounts, after how many hours of work do they have the same amount of money saved up? | | |

Model Equations with Algebra Tiles

| Model | Algebra | Words |
|---|---|---|
| | $2x - 5 = x + 1$ | |
| | $2x - 8 = 4x + 2$ | |

| Example | Make Note! | You Try |
|---|---|---|
| $-3x + 7 = 2x - 3$ | | $5x - 4 = -4x + 14$ |
| $3x - 2(5x - 1) = x - 6$ | | $-4x - 3(-3x + 4) = -2x + 2$ |

Find the Mistake - Two Errors in Each Incorrect Solution

| Solution with Errors | What did they do? | Correct Solution |
|---|---|---|
| $5x + 3 = 2x - 9$ <br><br> $\underline{+2x \quad\quad + 2x}$ <br><br> $7x + 3 = -9$ <br><br> $\underline{-3 \quad - 3}$ <br><br> $\dfrac{7x}{7} = \dfrac{-6}{7}$ <br><br> $x = -\dfrac{6}{7}$ | | $5x + 3 = 2x - 9$ |
| $2x - 8 = -3(4x - 1) + 3x$ <br> $2x - 8 = -12x - 3 + 3x$ <br> $2x - 8 = -9x - 3$ <br> $\underline{+9x \quad\quad + 9x}$ <br><br> $11x - 8 = -3$ <br><br> $\underline{+3 \quad + 3}$ <br><br> $\dfrac{11x}{11} = \dfrac{-5}{11}$ <br><br> $x = -\dfrac{5}{11}$ | | $2x - 8 = -3(4x - 1) + 3x$ |