Name: _____ Date: _____

10.2 Modelling and Solving Two-Step Equations

$ax + b = c$

Communicate the Ideas

1. **a)** Draw algebra tiles to model $3x - 5 = 16$.

Isolate means to get the variable alone.

b) To isolate x, add _____ tiles to both sides of the equation.
Give 1 reason why you need to add this number of tiles. Hint: Use zero pairs.

_____

_____

c) To solve for x, divide both sides of the equation by _____.
Give 1 reason why you need to divide by this number.

_____

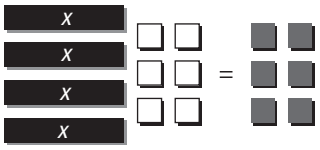
_____

Check Your Understanding

Practise

2. Solve each equation modelled by the algebra tiles.

a)



b)

$x =$ _____

$t =$ _____

Name: _____ Date: _____

3. Solve the equation modelled by each balance scale. Check your solution.

a) $3x + 8 = 11$

b) $13 = 4h + 5$

Name: _____ Date: _____

4. Complete the table.

Equation	First Operation to Solve	Second Operation to Solve
$4r - 2 = 14$	Add _____ to each side.	Divide both sides by _____.
$-22 = -10 + 2n$		
$53 = -9k - 1$		
$3 - 3x = -9$		

5. Solve each equation and check your answer.

a) $6r + 6 = 18$

Check:

Left Side	Right Side
$6r + 6$	18

b) $4m - 2 = 14$

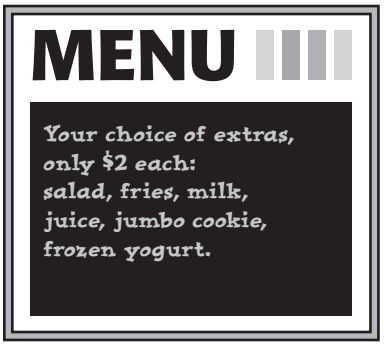
Check:

Left Side	Right Side

Name: _____ Date: _____

Apply

6. You buy lunch at Sandwich Express.
A sandwich costs \$4. Each extra topping costs \$2.
You have \$10. Use the equation $2e + 4 = 10$ to find how many extra toppings you can get if you spend all of your money.



Sentence: _____

7. Jennifer is saving money to buy a new bike.
She doubled the money in her bank account, and then she took out \$50.
She has \$300 left in her account.

a) Write an equation to find the amount in her account at the beginning.

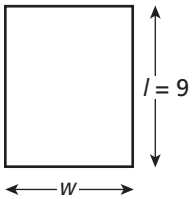
$\square\, m - \_\_\_\_\_ = 300$

m = money in Jennifer's account

b) Solve the equation.

Jennifer had _____ in her bank account.

8. A classroom's length is 3 m less than 2 times its width.
The classroom has a length of 9 m.



a) Write an equation to find the width of the classroom.

Equation: $\square\, w - \_\_\_\_\_ = \_\_\_\_\_$

w = width

b) Solve the equation to find the width of the classroom.

Sentence: _____