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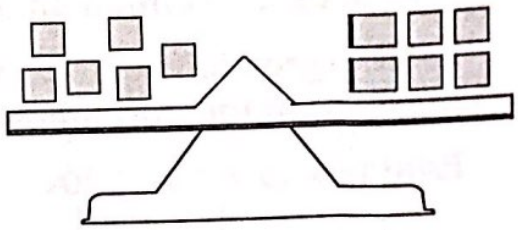
LESSON 9.3

Multiply Equals by Equals

You can think of an equation as being like a balance.

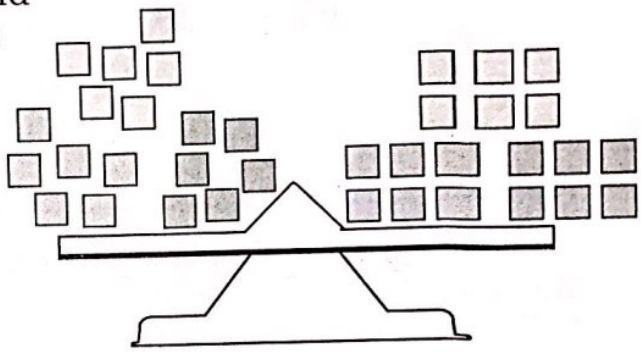
Look at the balance. It models the equation $6 = 3 \times 2$. Since there are 6 blocks on each side of the balance, it is level.



When you multiply both sides of an equation by the same number, the equation stays true.

How many blocks will be on the left-hand side if we multiply the number of blocks on that side by 3?

How many blocks will be on the right-hand side if we multiply the number of blocks on that side by 3?



Since both sides of the balance have 18 blocks, the balance is still level.

$6 = 3 \times 2$

$6 \times \mathbf{3} = (3 \times 2) \times \mathbf{3}$

$18 = 18$

A. Original equation

B. Multiply both sides by 3.

C. Find the value of each side.

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1. A. Original equation $5 = 8 - 3$

B. Multiply both sides by 5. $5 \times$ _____ $= (8 - 3) \times$ _____

C. Find the value of each side. $25 =$ _____

2. A. Original equation 4 nickels = 2 dimes

B. Multiply both sides by 4. _____ $\times 20¢ =$ _____ $\times$ _____

C. Find the value of each side. _____ = _____

3. A. Original equation $7 + 4 = 2 + 9$

B. Multiply both sides by 5. _____

C. Find the value of each side. _____

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LESSON 9.1

Expressions with Parentheses

An expression is a part of a number sentence that does not contain an equal sign.

If an expression contains parentheses, do the problem in the parentheses first.

Evaluate $(5 \times 12) - 20$

$\downarrow \quad \downarrow$

$60 - 20$

40

1. Do the problem in the parentheses first. **Think:** $5 \times 12 = 60$.
2. Write that answer and bring down the rest of the problem.
3. Solve the new problem.

Solve the problem inside the parentheses and write the result on the line.

1. $3 \times (12 - 9)$ — $3 \times$ _____
2. $(10 + 14) \div 4$ — _____ $\div 4$
3. $15 - (2 \times 3)$ — $15 -$ _____
4. $(4 \times 6) - 8$ — _____ $- 8$

Solve the problem inside the parentheses and write the result on the line. Then find the final answer.

5. $(4 \times 7) - 8$ — _____ $- 8$ — _____
6. $20 - (15 \div 3)$ — $20 -$ _____ — _____
7. $(36 - 4) \div 8$ — _____ $\div 8$ — _____

Find the value of the expression.

8. $20 + (14 \div 2)$
9. $54 \div (18 \div 2)$
10. $4 \times (7 + 5)$
11. $(4 \times 5) - (14 \div 7)$
12. $(81 \div 9) \times 5$
13. $50 - (5 \times 5)$