

## 7th Grade Lesson 63

- I can identify symbols of inclusion.
- I can simplify expressions that have multiple symbols of inclusion.

Parentheses are called **symbols of inclusion**.

$$15 - (5 + 7) \qquad 15 - 5 + 7$$

[ ]
{ }
? ?

Brackets [ ] and braces { } are also symbols of inclusion.  
When an expression contains multiple symbols of inclusion,  
we simplify within the innermost symbols first.

$$\begin{array}{l}
 20 - [15 - (5 + 7)] \quad \text{add } 5+7 \\
 20 - [15 - 12] \quad \text{Subt. } 15-12 \\
 20 - 3 \quad \text{Subt.} \\
 \textcircled{17}
 \end{array}$$

Simplify:  $50 - [20 + (10 - 5)]$  *subt 10-5*

$50 - [20 + 5]$  *add 20+5*

$50 - 25$  *subt*

$(25)$

*|* Absolute value *|* symbols may serve as symbols of inclusion.

Simplify:  $12 - (8 - |4 - 6| + 2)$  *subt 4-6*

$12 - (8 - |-2| + 2)$  *abs. val. of -2*

$12 - (8 - 2 + 2)$  *subt. 8-2*

$12 - (6 + 2)$  *add 6+2*

$12 - 8$  *subt.*

$(4)$

A division bar can serve as a symbol of inclusion.

$$\text{Simplify: } \frac{4 + 5 \cdot 6 - 7}{10 - (9 - 8)} \quad \text{mult. } 5 \cdot 6$$

$$\frac{4 + 30 - 7}{10 - (9 - 8)} \quad \text{add } 4 + 30$$

$$\frac{34 - 7}{10 - (9 - 8)} \quad \text{subt } 34 - 7$$

$$\frac{27}{10 - (9 - 8)} \quad \text{subt } 9 - 8$$

$$\frac{27}{10 - 1} \quad \text{subt}$$

$$\frac{27}{9} \quad \text{divide}$$

$$\textcircled{3}$$

$$4 \cdot 2 - 2 + \frac{5 + 3 \cdot 1}{6 - 2} \quad \text{mult } 3 \cdot 1$$

$$4 \cdot 2 - 2 + \frac{5 + 3}{6 - 2} \quad \text{add } 5 + 3$$

$$4 \cdot 2 - 2 + \frac{8}{6 - 2} \quad \text{subt. } 6 - 2$$

$$4 \cdot 2 - 2 + \frac{8}{4} \quad \text{divide } 8 \div 4$$

$$4 \cdot 2 - 2 + 2 \quad \text{mult}$$

$$8 - 2 + 2 \quad \text{Subt.}$$

$$6 + 2 \quad \text{add}$$

$$\textcircled{8}$$

## **Assignment:**

Problem Set 63 #1-5, 8-11, 15-17, 20, 21,  
23-26, 28, 29