NAME _____ DATE _____ PERIOD

1-3 Extension Activity

Nested Expressions

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Sometimes more than one set of parentheses are used to group the quantities in an expression. These expressions are said to have "nested" parentheses. The expression below has "nested" parentheses.

$$(4 + (3 \cdot (2 + 3)) + 8) \div 9$$

Expressions with several sets of grouping symbols are clearer if braces such as { } or brackets such as [ ] are used. Here is the same example written with brackets and braces.

$$\{4 + [3 \cdot (2 + 3)] + 8\} \div 9$$

To evaluate expressions of this type, work from the inside out.

$$\begin{aligned} \{4 + [3 \cdot (2 + 3)] + 8\} \div 9 &= \{4 + [3 \cdot 5] + 8\} \div 9 \\ &= [4 + 15 + 8] \div 9 \\ &= 27 \div 9 \\ &= 3 \end{aligned}$$

Evaluate each expression.

1. $3 + [(24 \div 8) \cdot 7] - 20$

2. $[(16 - 7 + 5) \div 2] - 7$

3. $[2 \cdot (23 - 6) + 14] \div 6$

4. $50 - [3 \cdot (15 - 5)] + 25$

5. $12 + \{28 - [2 \cdot (11 - 7)] + 3\}$

6. $\{75 + 3 \cdot [(17 - 9) \div 2]\} \cdot 2$

7. $20 + \{3 \cdot [6 + (56 \div 8)]\}$

8. $\{4 + [5 \cdot (12 - 5)] + 15\} \cdot 10$

9. $\{15 \cdot [(38 - 26) \div 4]\} - 15$

10. $\{[34 + (6 \cdot 5)] \div 8\} + 40$