

**1-4 Study Guide and Intervention****Order of Operations**

Use the **order of operations** to evaluate numerical expressions.

1. Evaluate the expressions inside grouping symbols.
2. Evaluate all powers.
3. Multiply and divide in order from left to right.
4. Add and subtract in order from left to right.

**Example 1 Evaluate  $(10 - 2) - 4 \cdot 2$ .**

$$\begin{aligned} (10 - 2) - 4 \cdot 2 &= 8 - 4 \cdot 2 && \text{Subtract first since } 10 - 2 \text{ is in parentheses.} \\ &= 8 - 8 && \text{Multiply 4 and 2.} \\ &= 0 && \text{Subtract 8 from 8.} \end{aligned}$$

**Example 2 Evaluate  $8 + (1 + 5)^2 \div 4$ .**

$$\begin{aligned} 8 + (1 + 5)^2 \div 4 &= 8 + 6^2 \div 4 && \text{First, add 1 and 5 inside the parentheses.} \\ &= 8 + 36 \div 4 && \text{Find the value of } 6^2. \\ &= 8 + 9 && \text{Divide 36 by 4.} \\ &= 17 && \text{Add 8 and 9.} \end{aligned}$$

**Exercises**

Evaluate each expression.

1.  $(1 + 7) \times 3$   
**24**

2.  $28 - 4 \cdot 7$   
**0**

3.  $5 + 4 \cdot 3$   
**17**

4.  $(40 \div 5) - 7 + 2$   
**3**

5.  $35 \div 7(2)$   
**10**

6.  $3 \times 10^3$   
**3,000**

7.  $45 \div 5 + 36 \div 4$   
**18**

8.  $42 \div 6 \times 2 - 9$   
**5**

9.  $2 \times 8 - 3^2 + 2$   
**9**

10.  $5 \times 2^2 + 32 \div 8$   
**24**

11.  $3 \times 6 - (9 - 8)^3$   
**17**

12.  $3.5 \times 10^2$   
**350**