

**GROUPING SYMBOLS** Grouping symbols such as parentheses ( ) and brackets [ ] indicate that operations inside the grouping symbols should be performed first. For example, to evaluate  $2 \cdot 4 + 6$ , you multiply first, then add. To evaluate  $2(4 + 6)$ , you add first, then multiply.

### EXAMPLE 2 Evaluate expressions with grouping symbols

Evaluate the expression.

a.  $7(13 - 8) = 7(5)$  **Subtract within parentheses.**  
 $= 35$  **Multiply.**

b.  $24 - (3^2 + 1) = 24 - (9 + 1)$  **Evaluate power.**  
 $= 24 - 10$  **Add within parentheses.**  
 $= 14$  **Subtract.**

c.  $2[30 - (8 + 13)] = 2[30 - 21]$  **Add within parentheses.**  
 $= 2[9]$  **Subtract within brackets.**  
 $= 18$  **Multiply.**

#### AVOID ERRORS

When grouping symbols appear inside other grouping symbols, work from the innermost grouping symbols outward.

**FRACTION BARS** A fraction bar can act as a grouping symbol. Evaluate the numerator and denominator before you divide:

$$\frac{8 + 4}{5 - 2} = (8 + 4) \div (5 - 2) = 12 \div 3 = 4$$

### EXAMPLE 3 Evaluate an algebraic expression

Evaluate the expression when  $x = 4$ .

$$\frac{9x}{3(x + 2)} = \frac{9 \cdot 4}{3(4 + 2)}$$
 **Substitute 4 for x.**

$$= \frac{9 \cdot 4}{3 \cdot 6}$$
 **Add within parentheses.**

$$= \frac{36}{18}$$
 **Multiply.**

$$= 2$$
 **Divide.**

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#### GUIDED PRACTICE for Examples 2 and 3

Evaluate the expression.

5.  $4(3 + 9)$                       6.  $3(8 - 2^2)$                       7.  $2[(9 + 3) \div 4]$

Evaluate the expression when  $y = 8$ .

8.  $y^2 - 3$                       9.  $12 - y - 1$                       10.  $\frac{10y + 1}{y + 1}$