1-2B Lesson Master

**SKILLS** Objective B

In 1–3, evaluate each expression.

1. $4\left(\frac{7}{2}\right) + 1$
2. $8\left(\frac{5}{2}\right) + 1$
3. $2\left(\frac{3}{2}\right) + 1$

4. Write another instance of the pattern shown by Questions 1–3.

In 5 and 6, give two instances of each pattern.

5. $3x^2 - 1 = 3 \times x \times x - 1$
6. $-5(x + 6) = -5 \times x - 30$

7. Three instances of a pattern are given. Describe the pattern using one variable.

   $(7 \cdot 2 - 2 \cdot 2) ÷ 5 = 5 \cdot 2 ÷ 5$
   $(7 \cdot 3 - 2 \cdot 3) ÷ 5 = 5 \cdot 3 ÷ 5$
   $(7 - 1 - 2 \cdot -1) ÷ 5 = 5 \cdot -1 ÷ 5$

In 8–10, evaluate each expression.

8. $3(4 - 1)^3$
9. $3(5 - 1)^3$
10. $3(3 - 1)^3$

11. Write another instance of the pattern shown by Questions 8–10.

In 12–14, three instances of a pattern are given. Describe the pattern using one variable.

12. $2(3 + 7) - 4 = 2 \cdot 3 + 10$
    $2(4 + 7) - 4 = 2 \cdot 4 + 10$
    $2(5 + 7) - 4 = 2 \cdot 5 + 10$

13. $3(2)^2 + 1 = 3 \cdot 2 \cdot 2 + 1$
    $3(1)^2 + 1 = 3 \cdot 1 \cdot 1 + 1$
    $3(3)^2 + 1 = 3 \cdot 3 \cdot 3 + 1$

14. $5^2 + 2(2 + 5) = 2 \cdot 2 + 7 \cdot 5$
    $5^2 + 2(3 + 5) = 2 \cdot 3 + 7 \cdot 5$
    $5^2 + 2(4 + 5) = 2 \cdot 4 + 7 \cdot 5$
15. Use the Commutative Property of Multiplication to find another expression that gives the same value as \(-3x \cdot 5y\).

16. The cost of a T-shirt is $15 and the cost of a hat is $12. Ingrid calculated the cost of \(s\) T-shirts and \(h\) hats using the expression \(15s + 12h\). Josh calculated the cost using the expression \(12h + 15s\). Which property tells you that Ingrid and Josh both calculated the cost correctly?

17. Use the Commutative Property of Addition to find another expression that gives the same value as \(4m + n\).

18. Jonathon works as a salesman in a large appliance store. He earns $400 a week plus 10% of any sales he makes.
   a. Write an expression for his weekly earnings if he sells \(a\) dollars worth of appliances.
   b. How much did he earn in the week he sold $1,500 worth of appliances?

19. Amy is considering a job selling cars. Her monthly salary would be $2,500. If she sells a new car, her average commission would be $400. For a used car, her average commission would be $600. Write an expression for the total amount she would earn if she sells \(N\) new cars and \(U\) used cars in a month.

20. Tori plays for the Lakeland Ladies basketball team.
   a. Write an expression for the total number of points she scores if she makes \(f\) foul shots (1 point), \(t\) 2-point shots, and \(T\) 3-point shots.
   b. What was her total number of points in the game if she made four foul shots, five 2-point shots, and one 3-point shot?