NAME _____ DATE _____ PERIOD ____

1-1 Study Guide and Intervention

Expressions and Formulas

Order of Operations

Order of Operations	1. Simplify the expressions inside grouping symbols. 2. Evaluate all powers. 3. Do all multiplications and divisions from left to right. 4. Do all additions and subtractions from left to right.

Example 1 **Evaluate $[18 - (6 + 4)] \div 2$.**

$$\begin{aligned}[18 - (6 + 4)] \div 2 &= [18 - 10] \div 2 \\ &= 8 \div 2 \\ &= 4\end{aligned}$$

Example 2 **Evaluate $3x^2 + x(y - 5)$ if $x = 3$ and $y = 0.5$.**

Replace each variable with the given value.

$$\begin{aligned}3x^2 + x(y - 5) &= 3 \cdot (3)^2 + 3(0.5 - 5) \\ &= 3 \cdot (9) + 3(-4.5) \\ &= 27 - 13.5 \\ &= 13.5\end{aligned}$$

Lesson 1-1

Exercises

Find the value of each expression.

1. $14 + (6 \div 2)$
2. $11 - (3 + 2)^2$
3. $2 + (4 - 2)^3 - 6$
4. $9(3^2 + 6)$
5. $(5 + 2^3)^2 - 5^2$
6. $5^2 + \frac{1}{4} + 18 \div 2$
7. $\frac{16 + 2^3 \div 4}{1 - 2^2}$
8. $(7 - 3^2)^2 + 6^2$
9. $20 \div 2^2 + 6$
10. $12 + 6 \div 3 - 2(4)$
11. $14 \div (8 - 20 \div 2)$
12. $6(7) + 4 \div 4 - 5$
13. $8(4^2 \div 8 - 32)$
14. $\frac{6 + 4 \div 2}{4 \div 6 - 1}$
15. $\frac{6 + 9 \div 3 + 15}{8 - 2}$

Evaluate each expression if $a = 8.2$, $b = -3$, $c = -4$, and $d = -\frac{1}{2}$.

16. $\frac{ab}{d}$
17. $5(6c - 8b + 10d)$
18. $\frac{c^2 - 1}{b - d}$
19. $ac - bd$
20. $(b - c)^2 + 4a$
21. $\frac{a}{d} + 6b - 5c$
22. $3\left(\frac{c}{d}\right) - b$
23. $cd + \frac{b}{d}$
24. $d(a + c)$
25. $a + b \div c$
26. $b - c + 4 \div d$
27. $\frac{a}{b + c} - d$