Name _____ Date _____

# WORKSHEET 1.5: SIMPLIFYING EXPRESSIONS WITH GROUPING SYMBOLS AND EXPONENTS

To simplify expressions with grouping symbols, exponents, and other operations, follow the steps below:

1. Simplify expressions within grouping symbols first. Simplify the innermost expressions first and continue working outward to the outermost expressions. As you do, be sure to follow steps 2, 3, and 4.
2. Simplify powers.
3. Multiply and divide in order from left to right.
4. Add and subtract in order from left to right.

## EXAMPLES

| | | |
|---|---|---|
| $3+4\times2+5^2=$ | $4^2+(3+5)\times2=$ | $3^2[(3+4)\times2]=$ |
| $3+4\times2+25=$ | $4^2+8\times2=$ | $3^2[7\times2]=$ |
| $3+8+25=$ | $16+8\times2=$ | $3^2\times14=$ |
| $11+25=$ | $16+16=$ | $9\times14=$ |
| 36 | 32 | 126 |

**DIRECTIONS:** Simplify.

1. $2\times3^2-5$
2. $37+5^2\times3$
3. $2^3+7(8-3)$
4. $(2+1)^3-2^3$
5. $(13-2^3)\times2+6^2$
6. $2^2\times8-5-1$
7. $\dfrac{48}{2^4}$
8. $\dfrac{(5-2)^3}{2\times7-5}$

**CHALLENGE:** What is the missing number? $\dfrac{4(\_\_\_\_+3)^2}{5(14-3^2)}=16$

Name Answer Key Date

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### EXAMPLES

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| $3+8+25=$ | $16+8\times2=$ | $3^2\times14=$ |
| $11+25=$ | $16+16=$ | $9\times14=$ |
| 36 | 32 | 126 |

**DIRECTIONS:** Simplify.

1. $2\times3^2-5$
   13
2. $37+5^2\times3$
   112
3. $2^3+7(8-3)$
   43
4. $(2+1)^3-2^3$
   19
5. $(13-2^3)\times2+6^2$
   46
6. $2^2\times8-5-1$
   26
7. $\frac{48}{2^4}$
   3
8. $\frac{(5-2)^3}{2\times7-5}$
   3

**CHALLENGE:** What is the missing number? $\frac{4(\_\_\_\_+3)^2}{5(14-3^2)}=16$

7 is the missing number.