



SKILL 12: Order of Operations with Parentheses

When simplifying expressions containing parentheses, use the following order of operations:

1. Do operations inside parentheses.
2. Multiply and divide in order from left to right.
3. Add and subtract in order from left to right.

An expression in parentheses is often written beside a number, a variable, or another expression in parentheses. When no operation sign is written between the parentheses and the other part of the expression, the operation is multiplication.

$$3(-2 + 5) \text{ means } 3 \cdot (-2 + 5)$$

Example 1

Simplify: $5(-16 + 10)$.

$$5(-16 + 10)$$

$$= 5(-6)$$

$$= -30$$

So, $5(-16 + 10) = -30$.

Do the operation inside the parentheses first.

Then multiply: $5(-6) = -30$.

Example 2

Simplify: $(1 + 2 \cdot 3)(4 - 6)$.

$$(1 + 2 \cdot 3)(4 - 6)$$

$$= (1 + 6)(-2)$$

$$= (7)(-2)$$

$$= -14$$

So, $(1 + 2 \cdot 3)(4 - 6) = -14$.

Do the operations in parentheses.

Then multiply: $(7)(-2) = -14$.

Guided Practice

Simplify each expression.

1. $6(24 - 14) = 6(\underline{\quad})$

$$= \underline{\quad}$$

2. $5(7 - 3 \cdot 9) = 5(7 - \underline{\quad})$

$$= 5(\underline{\quad})$$

$$= \underline{\quad}$$

SKILL 12: Practice**Simplify each expression.**

- | | |
|---|--|
| 1. $7(3 + 5) =$ _____ | 2. $(16 + 4) \div 5 =$ _____ |
| 3. $(-2)(3 + 8) =$ _____ | 4. $(-3 + 9) \div 2 =$ _____ |
| 5. $(6 + 4)(2 + 3) =$ _____ | 6. $3(2 \cdot 5 - 7) =$ _____ |
| 7. $(12 \cdot 3 - 1) \div 5 =$ _____ | 8. $(-8 - 22) \div 10 =$ _____ |
| 9. $(-2 + 6)(5 - 8) =$ _____ | 10. $(13 - 6)(13 - 7) =$ _____ |
| 11. $(6 - 13)(7 - 13) =$ _____ | 12. $18 \div (4 + 5) =$ _____ |
| 13. $36 \div (2 - 8) =$ _____ | 14. $60(8 - 12 + 2) =$ _____ |
| 15. $48 \div (2 - 8 \cdot 1) =$ _____ | 16. $(-9)(15 - 5) =$ _____ |
| 17. $54 \div (7 - 13) =$ _____ | 18. $1 + (3 - 9) + 8 =$ _____ |
| 19. $(14 + 10) \div (2 - 6) =$ _____ | 20. $(4 - 7)(2 + 9) =$ _____ |
| 21. $(7 - 6) + (2 - 3 \cdot 4) =$ _____ | 22. $9 \div (-2 - 1) =$ _____ |
| 23. $16 - (5 - 8) =$ _____ | 24. $(2 \cdot 6 - 4) \div (4 - 8) =$ _____ |

Solve.

25. The high temperature on Monday was 78°F . The high temperature on Tuesday and Wednesday was 81°F . Evaluate $(78 + 2 \cdot 81) \div 3$ to find the average high temperature for the 3 days.
- _____
26. Harry made deposits of \$55 and \$35 in his bank account. He wrote checks for \$20 and \$35. Evaluate $(55 + 35) - (20 + 35)$ to find the change in his bank account balance.
- _____

TEST PREP27. Evaluate: $2(8 - 12)$.

- | | |
|-----|------|
| A 8 | C -4 |
| B 4 | D -8 |

Skill 12

28. Evaluate $7m$ for $m = -2$.

- | | |
|-------|------|
| F -14 | H 5 |
| G -5 | J 14 |

Skill 11