

Order of Operations

Use the order of operations to simplify expressions.

- First perform operations within *grouping symbols*.
- Next simplify numbers with *exponents*.
- Then *multiply or divide* from left to right.
- Finally *add or subtract* from left to right.

$$\begin{aligned}
 &(42 \div 7) \times 3 - 4 \div 2 + 10^2 \\
 &= 6 \times 3 - 4 \div 2 + 10^2 \\
 &= 6 \times 3 - 4 \div 2 + 100 \\
 &= 18 - 2 + 100 \\
 &= 16 + 100 \\
 &= 116
 \end{aligned}$$

MORE PRACTICE

Write which operation is to be done first. Then simplify.

1. $50 - 5 \times 2^3$
 $50 - 5 \times 8$
 $50 - 40 = 10$

2. $25 \div 5 - 2$
 $5 - 2 = 3$

3. $45 \div 5 - 1$
 $9 - 1 = 8$

4. $8 + 3 \times 2$
 $8 + 6 = 14$

5. $4 \times (10 - 5)$
 $4 \times 5 = 20$

6. $[12 \div 6] + 5^2$
 $2 + 5^2$

Use the order of operations to simplify $(49 \div 7) \times 3 - 10 \div 2 + 4^2$. 27
 Match each step with a justification. Use one letter choice twice.

$$(49 \div 7) \times 3 - 10 \div 2 + 4^2$$

7. $= 7 \times 3 - 10 \div 2 + 4^2$ C
 8. $= 7 \times 3 - 10 \div 2 + 16$ D
 9. $= 21 - 5 + 16$ B
 10. $= 16 + 16$ A
 11. $= 32$ A

- A. Add or subtract from left to right.
 B. Multiply or divide from left to right.
 C. Perform operations within parentheses.
 D. Simplify numbers with exponents.

Use the order of operations to simplify.

12. $2 \times 3 \times 10 - 5$
 $6 \times 10 - 5$
 $60 - 5 = 55$

13. $12 \div 4 + 7$
 $3 + 7$
 10