

Order of Operations (PEMDAS) Practice

Name: _____ Date: _____

Directions: Solve each expression using the correct order of operations: **P**arentheses, **E**xponents, **M**ultiplication/**D**ivision (from left to right), and **A**ddition/**S**ubtraction (from left to right). Show your step-by-step work.

Part 1: Calculation Drills

Question 1: $4 \cdot 6 - (3 + 5)$

Question 5: $7 + 2 \cdot 3^3 - 14$

Question 2: $15 + 18 \div 3^2$

Question 6: $(9 - 3)^2 \div (4 + 8)$

Question 3: $5 \cdot (12 - 4) + 6^2 \div 2$

Question 7: $50 - 4 \cdot 2^3 + 11$

Question 4: $45 \div [3 \cdot (8 - 5)]$

Question 8: $[2 \cdot (15 - 6)] \div 3 + 7$

Part 2: Real-World Word Problems**Question 9: The School Carnival**

The school parent-teacher association buys 4 boxes of prize ribbons. Each box contains 25 ribbons. Before the carnival starts, a teacher takes 12 ribbons to use for early setup. The remaining ribbons are split equally among 4 game booths.

- **Task A:** Write a single mathematical expression using parentheses to show how to find the number of ribbons each booth receives.
- **Task B:** Solve the expression to find the final number of ribbons per booth.

Question 10: Building Flower Boxes

A gardener builds 3 wooden flower boxes. To build each individual box, he needs 6 long wooden planks and 4 short wooden planks. He already has 5 planks in his garage, so he only needs to buy the rest.

- **Task A:** Write a single mathematical expression using parentheses to find how many total planks he needs to buy.
 - **Task B:** Solve the expression to find the final number of planks to purchase.
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Teacher Answer Key & Explanations

1. **16** Parentheses first: $3 + 5 = 8$.
Then multiply: $4 \cdot 6 = 24$. Finally, subtract: $24 - 8 = 16$.
2. **17** Exponent first: $3^2 = 9$. Then divide: $18 \div 9 = 2$.
Finally, add: $15 + 2 = 17$.
3. **58** Parentheses first: $12 - 4 = 8$. Exponent next: $6^2 = 36$.
Multiply and divide left to right: $5 \cdot 8 = 40$ and $36 \div 2 = 18$.
Finally, add: $40 + 18 = 58$.
4. **5** Inner parentheses first: $8 - 5 = 3$.
Outer brackets next: $3 \cdot 3 = 9$. Finally, divide: $45 \div 9 = 5$.
5. **47** Exponent first: $3^3 = 27$. Multiply next: $2 \cdot 27 = 54$.
Add and subtract left to right: $7 + 54 = 61$, then $61 - 14 = 47$.
6. **3** Both parentheses sets first: $(9 - 3) = 6$ and $(4 + 8) = 12$.
Exponent next: $6^2 = 36$. Finally, divide: $36 \div 12 = 3$.
7. **29** Exponent first: $2^3 = 8$. Multiply next: $4 \cdot 8 = 32$.
Add and subtract left to right: $50 - 32 = 18$,
then $18 + 11 = 29$.
8. **13** Inner parentheses first: $15 - 6 = 9$.
Outer brackets next: $2 \times 9 = 18$. Divide next: $18 \div 3 = 6$.
Finally, add: $6 + 7 = 13$.
9. **Expression: $(4 \cdot 25 - 12) \div 4$ | Answer: 22 ribbons**
Multiply inside parentheses: $4 \cdot 25 = 100$.
Subtract inside parentheses: $100 - 12 = 88$.
Finally, divide: $88 \div 4 = 22$.
10. **Expression: $3 \cdot (6 + 4) - 5$ | Answer: 25 planks**
Add inside parentheses to find planks per box: $6 + 4 = 10$.
Multiply to get total planks for all boxes: $3 \cdot 10 = 30$.
Subtract the planks he already owns: $30 - 5 = 25$.

