Name _____ Date _____

Order of Operations with Parentheses: What Comes First?

Directions: Do the work inside parentheses first. Next, multiply and divide in order from left to right. Last, add and subtract in order from left to right. One expression also has brackets [ ]. Brackets group numbers the way parentheses do, so work from the inside out.

1. Find the value of this expression.

$(9 + 6) \times 4$

_____

2. Which step comes first when you evaluate this expression?

$45 \div (3 + 6) \times 2$

A. Divide 45 by 3. B. Multiply 6 by 2. C. Add 3 and 6.

3. Work through $6 \times (13 - 5) + 9$ step by step. Type the number for each blank.

The parentheses come first: $13 - 5 =$ _____. Next, multiply that number by 6 to get _____. Last, add 9 to get _____.

4. What is $38 - (15 + 9) \div 6$?

_____

5. Parentheses can change the value of an expression. Which equation is true?

A. $5 + 3 \times (6 - 2) = 46$ B. $(5 + 3) \times 6 - 2 = 46$

C. $5 + (3 \times 6) - 2 = 46$ D. $(5 + 3) \times (6 - 2) = 46$

6. Two students evaluate $30 - (4 + 6) + 5$.

- Desmond adds $4 + 6 = 10$. Then he adds $10 + 5 = 15$ and subtracts $30 - 15 = 15$.
- Lucia adds $4 + 6 = 10$. Then she subtracts $30 - 10 = 20$ and adds $20 + 5 = 25$.

Who is right, and why?

A. Lucia, because after the parentheses, adding and subtracting go in order from left to right.

B. Neither, because $30 - 4$ should come before anything is added.

C. Desmond, because addition always comes before subtraction.

D. Both, because adding and subtracting can be done in any order.

7. The expressions $7 + 3 \times 8$ and $(7 + 3) \times 8$ use the same numbers and signs. How much greater is the value of $(7 + 3) \times 8$ than the value of $7 + 3 \times 8$?

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8. Which expressions have the same value as $5 \times (2 + 6)$? Select the two that do.

☐ A. $(5 \times 2) + 6$ ☐ B. 5×8 ☐ C. $5 \times 2 + 5 \times 6$

☐ D. $5 \times 2 + 6$ ☐ E. $5 + 2 \times 6$

9. This expression has brackets around a part that has parentheses. Work from the inside out to find its value.

$4 \times [18 - (5 + 6)]$

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10. Camila buys 4 notebooks and 4 pens. Each notebook costs $3, and each pen costs $2. She pays with a $50 bill. The expression $50 - 4 \times (3 + 2)$ gives her change in dollars. How much change does Camila get?

_____ dollars