Name_____ Date_____ Period_____

LESSON 6-4 · SESSION 2 · PRACTICE · FORM B

Order of Operations with Powers

Learning target – I can evaluate an expression that contains grouping symbols and powers using the order of operations. · 6.EE.A.2c

REMEMBER

- Order: **1.** grouping ( ) **2.** powers **3.** × and ÷ left to right **4.** + and − left to right.
- × and ÷ are partners: do whichever comes first from the left. So are + and −.
- An exponent applies to its base, including a group in parentheses: $2 \times 3^2 = 2 \times 9 = 18$.

WORKED EXAMPLE

Evaluate $50 - (1 + 2)^2 \times 4$.

Step 1 Grouping: $1 + 2 = 3$, so $50 - 3^2 \times 4$.

Step 2 Power: $3^2 = 9$, so $50 - 9 \times 4$.

Step 3 Multiply, then subtract: $50 - 36 = 14$.

Answer **14**

WORDS **order of operations** *(orden de las operaciones)* · **grouping symbols** *(símbolos de agrupación)* · **left to right** *(de izquierda a derecha)*

PRACTICE

show your work · label units

1. Evaluate each expression.

a. $30 - 4 \times 5 =$ ____

b. $(30 - 4) \times 5 =$ ____

c. $5^2 - 8 \div 2 =$ ____

d. $3 \times 2^3 =$ ____

e. $40 \div 4 \times 2 =$ ____

f. $20 - 8 + 5 =$ ____

2. **Elena and Malik.** Elena and Malik evaluate $7 + 3 \times 4^2 - 12$. Elena works left to right after the power. Malik follows the order of operations.

a. Do the power first: $4^2 =$ _____

b. Multiply next: $3 \times$ ___ = _____

c. Add and subtract left to right. Value: _____

d. Why does Elena's method give a different value? _____

3. **Parentheses Power.** Evaluate $(5 + 1)^2 \div 4 + 10$.

Hint *Grouping first, then the power.*

Show your work.

Value_____

4. **Four Steps.** Evaluate $6^2 + 9 \times (11 - 5) \div 3$.

Hint *Show one step on each line.*

Show your work.

Value_____

5. Theo's Claim. Theo says $3 + 2 \times 5^2$ has a value of 125. Justify or correct his answer.

Hint *Power, then multiply, then add.*

Show your work.

Value_____

6. Place the Parentheses. The value of $40 \div 5 + 3 \times 2$ is 14. Insert ONE pair of parentheses so the value changes. Evaluate your new expression.

Hint *Not every grouping changes the value. Test yours.*

Show your work.

New value_____

7. Rosa's Claim. Rosa says $2 \times 3^3 + 4$ has a value of 220. Justify or correct her answer.

Hint *Did Rosa cube before she multiplied?*

Show your work.

Value_____

8. Two Readings. Use the expressions $5 + 3 \times 7$ and $(5 + 3) \times 7$.

a. $5 + 3 \times 7 =$ _____

b. $(5 + 3) \times 7 =$ _____

c. What did the parentheses change? _____

FIND THE ERROR

explain the mistake, then fix it

9. Javier's Work. Javier evaluated $9 + 3 \times 4^2$. He multiplied 3×4 first, then squared that result, and got 153. Explain his mistake. Then find the correct value.

_____

_____

_____

TEST PRACTICE

choose the best answer

10. Find $2 + 3 \times 4$.

A 20 **B** 14 **C** 24 **D** 9

11. Find $10 - 2^3$.

A 4 **B** 2 **C** 512 **D** 64

SELF-CHECK CODE *find your answer · copy its letter into that problem's box · spell a math word*

153 J	43 O	19 R	54 D	53 E	125 Z	220 X	58 R	148 Q	26 S

#2c	#3	#4	#5	#7	#8a

CHECK YOURSELF ☐ I can do this on my own ☐ I need a little help ☐ I have a question about #___