Unit 1
Order of Operations

Standard

> **Operations & Algebraic Thinking**
> **Write and interpret numerical expressions.**
> **5.OA.1** Use parentheses, brackets, or braces in numerical expressions, and
> evaluate expressions with these symbols.

Model the Skill

Order of Operations

1. Simplify within parentheses.
2. Multiply and divide from left to right.
3. Add and subtract from left to right.

◆ Write the equation 6 – 4 = 2 on the board. **Say:** *This is an equation. It uses numbers and symbols and an equal sign.* Write the expression 6 – 4 on the board. **Say:** *This is an expression. How is this different from the equation?* (It does not have an equal sign or an answer.) *Today, we will be evaluating expressions. When you evaluate an expression, you find the solution.*

◆ Write the expression 7 x 9 – 4 on the board.

◆ **Ask:** *What do you notice about this expression?* (Possible answer: It has three numbers and two different operation symbols.) *To evaluate this expression, you complete the operations from left to right just as you read words in a sentence. What is 7 multiplied by 9?* (63) *Now you can subtract 4 to finish evaluating the expression. What is 63 minus 4?* (59)

◆ Assign students the appropriate practice page(s) to support their understanding of the skill.

Assess the Skill

Use the following problems to pre-/post-assess students' understanding of the skill.

◆ Ask students to solve each problem.

36 ÷ 9 – 3	50 – 12 x 3	26 – 3 x (14 ÷ 2)
42 x 2 – 1	(8 + 17) x 3	(80 – 3) ÷ 11
63 ÷ (9 – 2)	32 ÷ 8 x 4	5 – 51 ÷ 17

Name _____

Use the order of operations. Evaluate each expression.

> **Order of Operations**
> 1. Simplify within parentheses.
> 2. Multiply and divide from left to right.
> 3. Add and subtract from left to right.

① 5 × 6 − 4

    ↓   ↓

  30   − 4 = _____

② 32 ÷ 4 + 2

    ↓   ↓

  _____ + 2 = _____

③ 36 ÷ 6 − 2

    ↓   ↓

  _____ − _____ = _____

④ 36 ÷ (6 − 2)

    ↓   ↓

  _____ ÷ _____ = _____

⑤ 40 ÷ 5 + 3

    ↓   ↓

  _____

⑥ 3 × 48 ÷ (15 − 3)

    ↓   ↓

  _____

⑦ (25 − 5) × 4 ÷ 2

    ↓   ↓

  _____

⑧ 64 ÷ (2 × 2) − 3

    ↓   ↓

  _____

☆ **Circle the operation you completed first to solve Problem 8.**

Name _____

Use the order of operations. Evaluate each expression.

Order of Operations
1. Simplify within parentheses.
2. Multiply and divide from left to right.
3. Add and subtract from left to right.

1 $5 \times (6 - 3)$

2 $24 \times (4 - 2)$

3 $32 \div (8 - 4)$

4 $28 \div (7 - 3)$

5 $7 \times (7 - 3)$

6 $56 \div (11 - 3)$

7 $3 + (4 \times 3)$

8 $40 + (72 \div 9) \div 8$

9 $23 + (30 \div 10) \times 4$

10 $(24 - 16) \div 8$

11 $32 - 16 \div 8$

12 $4 \times 5 \div 2 - 1$

☆ **Tell how evaluating an expression with parentheses affects the solution.**

8 ●●○

Name _____

Use the order of operations. Evaluate each expression.

1 $(17 \times 2) \div (16 \div 8)$ **2** $(25 - 1) + (7 \times 2)$ **3** $(5 \times 5) \times (6 - 2)$ **4** $8 \times 8 - 9 \times 7$

5 $(4 \times 8) - (9 + 7)$ **6** $(2 \times 8) - 9 + 7$ **7** $426 \div 3 \times 10$ **8** $183 - 3 \times 50$

9 $56 + 4 \times 6$ **10** $178 - (3 \times 9)$ **11** $5 \times (20 - 3) + 8$ **12** $49 \div 2 + 5$

13 $4 \times 8 + (19 - 3)$ **14** $190 \div 2 - 2$ **15** $76 + 14 \times 2$ **16** $24 \times 4 \div 2 \times 3$

17 $56 - (5 \times 5 + 5)$ **18** $88 - 11 \div 11$ **19** $12 \times 5 + 6 \times 3$ **20** $135 \div 9 - 8 \div 2$

☆ **Write an explanation of how you evaluated Problem 17.**

Name _____

Solve.

1 Hilary has six times as many apples as James. James has 3 green apples and 4 red apples. How many apples does Hilary have?

2 Kendall has three fewer pencils than Lara. Lara has twice as many pencils as Stephanie. If Stephanie has 10 pencils, how many pencils does Kendall have?

3 There are 13 cars parked in the lot on Wednesday. There are 4 more cars parked on Thursday. There are 5 times that amount on Saturday. How many cars are parked on Saturday?

4 Jaden has 56 baseball cards in a pile. Jaden divides the cards evenly into four albums and then buys 2 more cards for each album. How many cards does Jaden have in all?

5 Brady has 3 dozen eggs. He uses 6 eggs to bake some muffins. Then he uses three times that amount to make omelettes. How many eggs does Brady have left?

6 There are 4 windows in the living room. Each window has 1 set of blinds and 2 panels of curtains. The blinds cost $20 each. Each curtain panel costs $28. How much do the window treatments cost?

Circle the letter for the correct answer.

7 $48 \div 8 - 2 = ?$

a) 2

b) 4

c) 6

d) 8

8 $90 \times 7 - 4 \times 50 \div 2 = ?$

a) 6,750

b) 215

c) 530

d) 3,375

Name _____ Date _____

Evaluate each expression.

① $3 \times (6 - 1) =$

② $(12 \div 2) + 7 =$

③ $5 \times (3 + 6) =$

④ $8 - (3 \times 2) =$

⑤ $45 \div (7 + 2) =$

⑥ $36 \div (11 - 7) =$

⑦ $17 + (8 \times 9) =$

⑧ $68 - (5 \times 7) =$

⑨ $(26 + 51) \div 7 =$

⑩ $(2 + 3) \times (11 - 7) =$

⑪ $(51 + 13) \div (15 - 7) =$

⑫ $(3 \times 3) + (3 \div 3) =$

⑬ $(7 \times 8) + (2 \times 8) =$

⑭ $(7 \times 2) + (7 \times 5) =$

16

Name _____ Date _____

Compare each pair of expressions. Use <, >, or =.

① $(5 + 3) \times 3$ ◯ $6 \times (11 - 7)$

② $35 \div (1 + 6)$ ◯ $(50 \div 5) - 4$

③ $(7 \div 7) + 7$ ◯ $7 - (7 \div 7)$

④ $9 + (10 \times 3)$ ◯ $(20 \div 5) \times 10$

⑤ $(23 - 4) \times 5$ ◯ $9 \times (6 + 5)$

⑥ $8 \times (9 - 2)$ ◯ $(10 \times 8) - 8$

⑦ $(11 - 4) \times (13 - 8)$ ◯ $(5 \times 8) - (1 + 4)$

⑧ $(13 - 4) \times (7 + 4)$ ◯ $(10 \times 20) \div (8 - 6)$

⑨ $(27 \div 3) \times (20 - 13)$ ◯ $(9 \times 8) - (5 \times 4)$

⑩ $(25 - 19) \times (16 - 8)$ ◯ $(8 \times 5) + (8 \times 2)$