We will evaluate numerical expressions. | **Concept Development**

A **numerical expression** is made up of **numbers** connected by **operations** (+, –, ×, ÷).

►To evaluate a **numerical expression**, the operation in **grouping symbols** is **calculated first**.

Grouping Symbols

( )

parentheses

	Evaluate <u>Without</u> Grouping Symbols	**Evaluate <u>With</u>** Grouping Symbols
Step 1	**10** × **6** + 8	10 × **(6 + 8)**
Step 2	**60** + 8	10 × **14**
Step 3	68	140

CFU

Which is a numerical expression? Explain.

A **10,345**

B **10 × 345**

To evaluate,

3 + (42 – 16)

which operation would be calculated first? Explain.

A **3 + 42**

B **42 – 16**

In your own words, what do grouping symbols mean in a numerical expression?

1 Read the numerical expression.
2 Evaluate the numerical expression.
A Calculate the operation in the grouping symbols. (write)
B Calculate the remaining operation. (solve)

1. **(28 + 36) ÷ 4**

2. **28 + (36 ÷ 4)**

3. **(28 + 32) × (48 – 18)**

4. **(72 ÷ 9) × (63 – 13)**

1. Read the numerical expression.
2. Evaluate the numerical expression.
   - **A** Calculate the operation in the grouping symbols. (write)
   - **B** Calculate the remaining operation. (solve)

1. Sunny got **$40** from her parents and **$60** from her grandparents for her birthday. Sunny saved half of the money.

The following are expressions that represent the amount of money that Sunny saved in her piggy bank.

$\frac{1}{2} \times (40 + 60)$ and $\left(\frac{1}{2} \times 40\right) + \left(\frac{1}{2} \times 60\right)$

How much money did Sunny save in her piggy bank? Evaluate both expressions.

2. Christian bought **3 bags of marbles** and Eric bought **5 bags.**

Each bag has 10 marbles.

The following are expressions that represent the number of marbles Christian and Eric bought altogether.

$10 \times (3 + 5)$ and $(10 \times 3) + (10 \times 5)$

How many marbles did Christian and Eric buy altogether? Evaluate both expressions.

We will evaluate numerical expressions.	Closure

Skill Closure

1 Read the numerical expression.
2 Evaluate the numerical expression.
A Calculate the operation in the grouping symbols. (write)
B Calculate the remaining operation. (solve)

1. **(27 – 13) × 5**

2. **(34 + 15) ÷ (62 – 55)**

Concept Closure

Writing

Write an explanation.

A teacher read the following numerical expression aloud. First, add 10 to 25 and then divide by 5. Susie's answer was 15. Is she correct? Explain.

$$10 + (25 \div 5)$$
$$10 + 5$$
$$15$$

Summary Closure

What did you learn today about evaluating numerical expressions?

Word Bank

evaluate
calculate
first
parentheses

1 Read the numerical expression.
2 Evaluate the numerical expression.
A Calculate the operation in the grouping symbols. (write)
B Calculate the remaining operation. (solve)

1. **(56 + 28) ÷ 7**

2. **(56 ÷ 7) + (28 ÷ 7)**

3. **9 × (50 + 7)**

4. **(9 × 60) – (9 × 3)**

Read the word problem.
Evaluate the numerical expression.

Each bottle of water has about 17 fluid ounces (fl. oz.).

Mrs. Garcia brought 12 bottles and Mr. Robison brought 10 bottles for the 5th grade students volunteering to clean up the local park.

17 × (12 + 10)

What is the total amount of water in fluid ounces?

The Drama Club has 16 students from 5th grade and 14 students from 6th grade. Half of the students will be participating in the upcoming play.

$\frac{1}{2}$ × (16 + 14)

How many students will be participating in the upcoming play?

Read the numerical expressions.
Determine if the value of the expression is less than, equal to, or greater than the given number.

	Less than 52	Equal to 52	Greater than 52
A $(10 + 3) \times 4$			
B $10 + (3 \times 4)$			
C $(40 + 12) \div 4$			
D $39 + 6 + 7$			

	Less than 27	Equal to 27	Greater than 27
A $54 \div (6 \times 3)$			
B $(12 \times 7) - (34 + 23)$			
C $(54 \div 6) \times 3$			
D $(9 \times 3) + 15$			

Read the numerical expressions. Evaluate.

1. $(13 + 20) \times 4$

2. $(30 \times 7) - (54 \div 6)$

3. $\left(14 \times \frac{1}{2}\right) + \left(24 \times \frac{1}{2}\right)$

Place grouping symbols in the numerical expression to get the correct answer.

1. $32 + 15 \times 4 = 188$

2. $56 \div 8 - 4 = 14$

3. $32 + 15 \times 4 = 92$

4. $20 - 10 \times 10 + 7 = 170$

5. $56 \div 8 - 4 = 3$

6. $5 \times 10 + 5 \times 7 = 85$

Read the numerical expressions. Evaluate.

1. **$(14 + 36) \times (77 - 17)$**

2. **$40 \times (58 - 23)$**

3. $\left(32 \times \frac{1}{4}\right) + \left(40 \times \frac{1}{4}\right)$

Read the word problem. Evaluate.

1. Fill in the blanks to create numerical expressions that has a **value of 32** when evaluated.

4 × (_____ + _____) = 32

4 × (_____ - _____) = 32

(**4** × _____) + (**4** × _____) = 32

2. Fill in the blanks to create numerical expressions that have a **value of 42** when evaluated.

7 × (_____ + _____) = 42

7 × (_____ - _____) = 42

(**7** × _____) + (**7** × _____) = 42

Read the numerical expressions. Evaluate.

1. **(72 ÷ 6) + (86 – 59)**

2. $\left(200 \times \frac{1}{10}\right) + \left(50 \times \frac{1}{10}\right)$

3. $250 \times \frac{1}{10}$