Evaluate Expressions with Grouping Symbols

CHAPTER 12

Florida's B.E.S.T.

 Algebraic Reasoning 5.AR.2.1, 5.AR.2.2
Mathematical Thinking & Reasoning MTR.4.1, MTR.6.1, MTR.7.1

I Can) evaluate expressions using the order of operations.

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UNLOCK the Problem Real World

Nevaeh's weekly allowance is \$8 and Audric's weekly allowance is \$5. Every week they each spend \$2 on lunch. Write a numerical expression to show how many weeks it will take them together to save enough money to buy a video game for \$45.

Use parentheses to write an expression.

You can use parentheses to group operations that go together. Operations in parentheses are performed first.

- **STEP 1** Write an expression to represent how much Nevaeh and Audric save each week.
- How much money does Nevaeh save each week?

Think: Each week Nevaeh gets \$8 and spends \$2.

• How much money do Nevaeh and Audric save together each week?

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STEP 2 Write an expression to represent how many weeks it will take Nevaeh and Audric to save enough money for the video game.

 How many weeks will it take Nevaeh and Audric to save enough for a video game?

 Underline Nevaeh's weekly allowance and how much she spends.

• Circle Audric's weekly allowance and how much he spends.

• How much money does Audric save each week?

Think: Each week Audric gets \$5 and spends \$2.



MTR Engage in discussions on **4.1** mathematical thinking.

Explain why parentheses are placed around the part of the expression that represents the amount of money Nevaeh and Audric save each week.

Evaluate Expressions with Grouping Symbols When

evaluating an expression with grouping symbols, perform the operation in the grouping symbols first, being sure to apply the order of operations as you do.

Example

Juan gets \$6 for his weekly allowance and spends \$4 of it. His sister Tina gets \$7 for her weekly allowance and spends \$3 of it. They want to buy their mother a present in 4 weeks. If they spend the same amount each week, how much money can they save together in that time to buy her a present?

- Write the expression using parentheses.
- Perform the operations in the parentheses first.

Add and subtract from left to right.

• Then multiply.

So, Juan and Tina will be able to save ______ for their mother's birthday present.

• MTR What if only Tina saves any money? Will this change the numerical expression? Explain.

Try This! Follow the order of operations.

A \times (3 \times 3 + 6 \times 2)	
Inside the parentheses, multiply from left to right.	4 × (+)
Inside the parentheses, add .	4 ×
Multiply.	
B 32 ÷ (2 × 3 + 7 − 9)	
Inside the parentheses, multiply.	32 ÷ (+ 7 - 9)
Inside the parentheses, add and subtract from left to right.	32 ÷ (– 9)
	32 ÷

• Divide.



 $4 \times$





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