



What Is a Variable?

Name: _____

Date: _____

Class Period: _____

1 WARM-UP

Lesson 1: What Is a Variable? Goal: Identify variables and translate keywords into mathematical symbols. 💡 Hint: Variables are letters (like x , n , p) that represent unknown quantities or values that can change. 🧩 GEMDAS Reminder: Grouping → Exponents → Multiplication/Division → Addition/Subtraction

1. Use the Word Bank to match each keyword to its correct mathematical symbol. Draw a line connecting them.

- sum A. $\div 2$
- quotient B. $-$
- twice C. $+$
- difference D. $\div$
- half E. $\times 2$

2. Identify the variable in each expression below. Write the letter on the line. a. $5 + n$ Variable: _____ b.

$3x - 7$ Variable: _____

3. Write an algebraic expression for each phrase using a variable of your choice and the Word Bank. a. Twice a number

m : _____ b. The sum of y and 9:

4. Translate the following math expressions into words using keywords from the Word Bank. a. $p \div 2$:

_____ b. $6 - k$:

2 VOCABULARY — MATCH THE TERM TO ITS DEFINITION

Use the word bank. Match each term to its symbol or definition and write the matching letter in the box. Word Bank

✓	Keyword	Symbol / Operation
_____	sum	+
_____	difference	—
_____	product	$\times$ or $()$
_____	quotient	$\div$ or fraction bar
_____	twice	$\times 2$
_____	half	$\div 2$

3 GUIDED PRACTICE

Goal: Select appropriate variables and write expressions for real-world scenarios. 💡 Hint: When writing an expression, pay attention to the order of words. “Three less than a number” means you start with the number and subtract three ($n - 3$), not $3 - n$.

1. A taxi company charges a flat fee of \$4.00 plus \$2.50 per mile traveled.

- Define a variable to represent the distance in miles.

- Let _____ = _____.

- Write an expression for the total cost of the ride.

- Expression: _____

2. A rectangular garden has a width of w feet. The length is 5 feet more than three times the width.

- Write an expression for the length of the garden in terms of w .

- Length: _____

- Write an expression for the perimeter ($P = 2L + 2W$) using your length expression and w .

- Perimeter: _____

3. Maria has \$50 saved. She earns \$12 per hour babysitting. Let h represent the number of hours she works.

- Write an expression for her total money after working h hours.
- Expression: _____
- If Maria works 4 hours, use GEMDAS to evaluate your expression and find her total money.
- Calculation: _____
- Total Money: \$ _____

4. A subscription service costs \$15 per month plus a one-time setup fee of \$20. Let m be the number of months subscribed.

- Which expression correctly models the total cost? Circle the correct answer and explain why the other is incorrect.
- Option A: $15 + 20m$
- Option B: $20 + 15m$
- Explanation: _____

4

PARTNER PRACTICE

Sentence frames: First, I _____. Then, I _____. Finally, I _____ because _____.

Goal: Create models, interpret components, and reason about variable constraints. 💡 Hint: In real-world contexts, variables often have restrictions (e.g., time cannot be negative).

1. Create a Scenario: Write a real-world situation that can be modeled by the expression $8c - 3$.

- Define what your variable represents.

• Let _____ = _____.

- Describe the scenario clearly so someone else could derive this expression from your description.

• _____

2. Interpret and Justify: Consider the expression $100 - 5d$ used to model the amount of water (in liters) remaining in a tank after draining at a rate of 5 liters per day, where d is the number of days.

- What does the constant term 100 represent in this context?

- Can d be equal to -2 ? Explain your reasoning based on the real-world context.

3. Compare and Analyze: Two students write expressions for “The product of a number and its successor.”

- Student A writes: $n + (n + 1)$

- Student B writes: $n(n + 1)$

- Which student is correct? Explain the difference between “sum” and “product” in your justification.

SELF-ASSESSMENT

Rate yourself on the following criteria using the scale below.

Scale:

4 = Independent | 3 = Accurate | 2 = Needs Support | 1 = Still Learning

Criteria	Rating (4-3-2-1)	Reflection / Goal
I can define a variable and identify it in expressions.		
I can translate keywords (sum, difference, product, quotient) into symbols.		
I can select variables and write expressions for real-world scenarios.		
I can create models and reason about variable constraints/interpretations.		

Performance Descriptors:

- 4: Can define, identify variables, and write complex expressions; creates accurate real-world models.
- 3: Can define, identify variables, and write basic expressions accurately.
- 2: Can identify variables but needs support with translation or writing expressions.
- 1: Is still learning what a variable is and how to represent unknowns.