3.2 Writing Expressions

1

ESSENTIAL QUESTION

How can you write an expression that represents an unknown quantity?

2

COMMON CORE STATE STANDARDS

6.EE.2a Write, read, and evaluate expressions in which letters stand for numbers. Write expressions that record operations with numbers and with letters standing for numbers.

3

FOUR OPERATIONS IN MATH

ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
All together	Decrease by	Of	Divided
Combined	Difference	Product	Quotient
More Than	Fewer than	Times	Average
Perimeter	Left	Triple	
Sum	Less than	Twice	
Total	Minus		
Join	Take Away		

4

Write the phrase as an expression.

a. 8 fewer than 21

$21 - 8$

b. the product of 30 and 9

$30 \cdot 9, (30)(9), (30)9, \text{ or } 30(9)$

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EXAMPLE 2 Writing Algebraic Expressions

Write the phrase as an expression.

a. 14 more than a number x

$x + 14$

b. a number y minus 75

$y - 75$

c. The quotient of 3 and a number z

$3 \div 2 \text{ or } \frac{3}{2}$

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🔴 **On Your Own**

Write the phrase as an expression.

1. the sum of 18 and 35 $18 + 35$

2. 6 times 50 $6(50)$

3. 25 less than a number b $b - 25$

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🔴 **On Your Own**

Write the phrase as an expression.

4. a number x divided by 4 $\frac{x}{4}$ or $x \div 4$

5. the total of a number t and 11 $t + 11$

6. 100 decreased by a number k $100 - k$

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EXAMPLE 3 Writing an Algebraic Expression

The length of Interstate 90 from the West Coast to the East Coast is 153.5 miles more than 2 times the length of Interstate 15 from southern California to northern Montana. Let m be the length of Interstate 15. Which expression can you use to represent the length of Interstate 90?

Ⓐ $2m + 153.5$ Ⓑ $2m - 153.5$ Ⓒ $153.5 - 2m$ Ⓓ $153.5m + 2$

The answer is A

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EXAMPLE 4 Real-Life Application

You plant a cypress tree that is 10 inches tall. Each year, its height increases by 15 inches.

a. Make a table that shows the height of the tree for 4 years. Then write an expression for the height after t years.

b. What is the height after 9 years?

Year	Height (Inches)
0	10
1	$10 + 15(1) = 25$
2	$10 + 15(2) = 40$
3	$10 + 15(3) = 55$
4	$10 + 15(4) = 70$

Expression → $10 + 15t$

Evaluate $10 + 15t$ when $t = 9$

$10 + 15(9) = 10 + 135 = 145$

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🔴 **On Your Own**

7. Your friend has 5 more than twice as many game tokens as your sister. Let t be the number of game tokens your sister has. Write an expression for the number of game tokens your friend has.

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🔴 **On Your Own**

8. **WHAT IF?** In Example 4, what is the height of the cypress tree after 16 years?

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