

3.2 Writing Algebraic Expressions

Operation	Word Phrases	Algebraic Expression
+	<ul style="list-style-type: none"> • add 3 to a number • a number plus 3 • the sum of a number and 3 • 3 more than a number • a number increased by 3 	$n + 3$
-	<ul style="list-style-type: none"> • subtract 12 from a number • a number minus 12 • the difference of a number and 12 • 12 less than a number • a number decreased by 12 • take away 12 from a number • a number less 12 	$x - 12$
*	<ul style="list-style-type: none"> • 2 times a number • 2 multiplied by a number • the product of 2 and a number 	$2m$ or $2 * m$
÷	<ul style="list-style-type: none"> • 6 divided into a number • a number divided by 6 • the quotient of a number and 6 	$a \div 6$ or $\frac{a}{6}$

than \ominus

Write the phrase as an expression.

- 8 fewer than 21 $21 - 8$
- The product of 30 and 9 $30 * 9$
- 14 more than a number $x + 14$
- A number y minus 75 $y - 75$
- The quotient of 3 and a number z $3 \div z$
- 25 less than a number b $b - 25$
- 30 less 6 $30 - 6$
- 14 divided by a number q $14 \div q$

Write two phrases for each expression.

- $4w$
 - The product of 4 and a number w
 - 4 times a number w
- $15 - b$
 - a number b less than 15
 - 15 decreased by a number b
- $14 + z$
 - The sum of 14 and a number z
 - a number z more than 14

Name: _____ Hr: _____

"Answer To" words	
These Indicate that you need to find the answer to that operation BEFORE doing the other operations... You need to use parenthesis with these!	
Addition: Sum Word Phrase: 9 divided by the (sum of) a number r and 12)	Algebraic Expression: $9 \div (r + 12)$
Subtraction: Difference Word Phrase: 10 multiplied by the (difference of) 12 and a number q)	Algebraic Expression: $10 \cdot (12 - q)$
Multiplication: Product Word Phrase: A number z divided by the (product of) 7 and 9)	Algebraic Expression: $Z \div (7 \cdot 9)$
Division : Quotient Word Phrase: 32 take away the (quotient of) 16 and a number w)	Algebraic Expression: $32 - (16 \div W)$

Write the phrase as an expression.

- Twice the **sum of** a number u and 8 $2(u+8)$ or $2 \cdot (u+8)$
- 5 **less than** the **product of** 14 and a number z $(14 \cdot z) - 5$
- 13 **increased** by the **quotient of** a number t and 7 $13 + (t \div 7)$

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** represent the length of Interstate 15. Write an expression you can use to represent the length of Interstate 90.

Expression: $153.5 + 2 \cdot m$

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.

Year, t	Height (inches)
0	10 in.
1	$10 + 15 \cdot 1 = 10 + 15 = 25$ in.
2	$10 + 15 \cdot 2 = 10 + 30 = 40$ in.
3	$10 + 15 \cdot 3 = 10 + 45 = 55$ in.
4	$10 + 15 \cdot 4 = 10 + 60 = 70$ in.

Expression: $10 + 15t$

- b) What is the height after 9 years? \leftarrow evaluate and substitute 9 for t.

$$\begin{array}{r} 15 \\ \times 9 \\ \hline 135 \end{array}$$

$$10 + 15t$$

$$10 + 15 \cdot 9$$

$$10 + 135 = 145 \text{ in.}$$