

## 3.2 WRITING EXPRESSIONS

ESSENTIAL QUESTION: *How can you write an expression that represents an unknown quantity*

### 4 MAIN OPERATIONS IN MATH

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

#### EXAMPLE 1

Write the phrase as an expression.

- |  |  |   |
|--|--|---|
| 1) 8 fewer than 21<br>$21 - 8$                   | 2) the product of 30 and 9<br>$30 \times 9$ or $30(9)$               | 3) 14 more than a number $x$<br>$x + 14$                    |
| 4) a number $y$ minus 75<br>$y - 75$             | 5) the quotient of 3 and a number $z$<br>$3 \div z$ or $\frac{3}{z}$ | 6) the sum of 18 and 35<br>$18 + 35$                        |
| 7) 6 times 50<br>$6(50)$ or $60 \cdot 5$         | 8) 25 less than a number $b$<br>$b - 25$                             | 9) a number $x$ divided by 4<br>$x \div 4$ or $\frac{x}{4}$ |
| 10) the total of a number $t$ and 11<br>$t + 11$ | 11) 100 decreased by a number $k$<br>$100 - k$                       |   |

#### EXAMPLE 2

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?

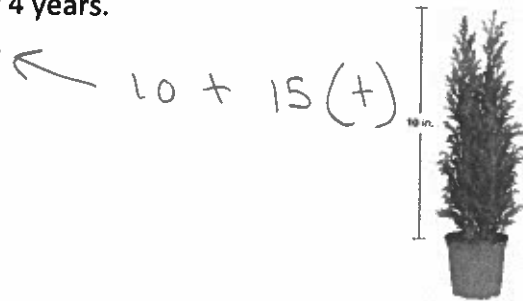
- a)  $2m + 153.5$     b)  $2m - 153.5$     c)  $153.5 - 2m$     d)  $153.5 + 2$

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



b) What is the height after 9 years?

Evaluate  $10 + 15t$  when  $t = 9$   
 $10 + 15(9)$   
 $10 + 135$   
 $145$

After 9 years the height will be 135 inches.