

Creating Expressions from a Verbal Description

Addition	Subtraction	Multiplication	Division	Exponents
Sum	Difference	Of	Quotient	Power
Increased by	Decreased by	Product	Ratio of	Squared
More than	Minus	Times	Each	Cubed
Combined	Less	Multiplied by	Fraction of	
Together	Less than	Double, Triple	Out of	
Total of	Fewer than	Twice	Per	
Added to	How many more	As much	Divided by	
Gained	Left	Each	Split	
Raised	<b>Use Parenthesis:</b> The quantity of			
Plus				

Addition	Multiplication	Subtraction	Division
The sum of x and 4.	The product of x and 3.	The difference of x and 5.	The quotient of x and 7
$x + 4$	$x \cdot 3$ $3 \cdot x$	$x - 5$	$\frac{x}{7}$

Creating Expressions from a Context

Practice: Use the tables below to create an expression to represent each situation. Then answer the questions on the right.

**Scenario A:** For competing in the Spelling Bee, I get \$3 for each correct word I spell in addition to \$50 for participating. Determine how much money I will make for each of the correct words I spell.

# of words	Amount of \$ I get
6	$\$3(6) + \$50 = \$68$
18	$\$3(18) + 50$
30	$\$3(30) + 50$
x	$\$3(x) + 50$

- What value(s) remains constant?  
 $\$50$
- What does that value represent?  
 $\$$  for participating
- What continuously changes?  
# of variables
- What expression represents the situation?  
 $3x + 50$
- What does the variable, x, represent?  
# of words

## Creating Expressions from a Context

**Scenario A:** Trey is selling candy bars to raise money for his basketball team. The team receives \$1.25 for each candy bar sold. He has already sold 25 candy bars.

a. If Trey sells 10 more candy bars, how much money will he raise for the basketball team?

$$\$1.25(25 + 10) =$$

b. If Trey sells 45 more candy bars, how much money will he raise for the basketball team?

$$\$1.25(25 + 45) =$$

c. Write an expression to represent the unknown amount of money Trey will raise for the basketball team. Let  $c$  represent the additional candy bars sold.

$$\$1.25(25 + c) =$$

**Scenario B:** Five friends (Jack, Jace, Kristian, Isreal, and Zach) have their own iPhones with songs downloaded to their phones from iTunes.

- Jace has five more songs than Jack.
- Kristian has half as many songs as Jace.
- Isreal has 3 more than twice the number of songs as Jack.
- Zach has three times as many songs as Kristian.

# of songs for Jack	# of songs for Jace	# of songs for Kristian	# of songs for Isreal	# of songs for Zach	Total # of Songs
11	$11 + 5 = 16$	$\frac{16}{2} = 8$	$3 + (11 \cdot 2) = 25$	$3 \cdot 8 = 24$	$16 + 8 + 25 + 24$
15	$15 + 5 = 20$	$\frac{20}{2} = 10$	$3 + (15 \cdot 2) = 33$	$3 \cdot 10 = 30$	$20 + 10 + 33 + 30$
25	$25 + 5 = 30$	$\frac{30}{2} = 15$	$3 + (25 \cdot 2) = 53$	$3 \cdot 15 = 45$	$30 + 15 + 53 + 45$
$x$	$x + 5$	$\frac{x}{2}$	$3 + (x \cdot 2)$	$3 \cdot x$	$(x + 5) + (\frac{x}{2}) + (3 + (2x)) + 3x$

### Understanding Parts of an Expression

a. Hot dogs sell for \$1.80 apiece and hamburgers sell for \$3.90 apiece. This scenario can be represented by the expression  $1.80x + 3.90y$ . Identify what the following parts of the expression represent.

1.80	\$ for hotdogs
3.90	\$ for hamburgers
x	# of hotdogs
y	# of hamburgers
$1.80x$	total amount for hotdogs
$3.90y$	total amount for hamburgers
$1.80x + 3.90y$	total amount for hotdogs + hamburger

b. Noah and his friends rent a sailboat for \$15 per hour plus a basic fee of \$50. This scenario can be represented by the expression  $15h + 50$ .

15	\$ per hour to rent a sailboat
h	# of hours on sailboat
$15h$	total amount w/o fee
50	basic fee to rent a sailboat
$15h + 50$	total amount to rent a sailboat w/ basic fee

c. A teacher has \$600 to spend on supplies. They plan to spend \$40 per week on supplies. This scenario can be represented by the expression  $600 - 40w$ .

600	\$ to spend on supplies
-40	\$ plan to spend on supplies
w	# of weeks
$-40w$	total amount spent on supplies per week
$600 - 40w$	total amount spent on supplies