

Day 6 - Creating Expressions from a Context Notes

Think About It: At the post office, it costs \$5.95 to ship a package that weighs up to five pounds. If Sarah wanted to ship ____ boxes, how much would it cost? (Show your calculations)

a. 3 boxes

$5.95 \cdot 3$

b. 5 boxes

$5.95 \cdot 5$

c. 8 boxes

$5.95 \cdot 8$

d. x boxes

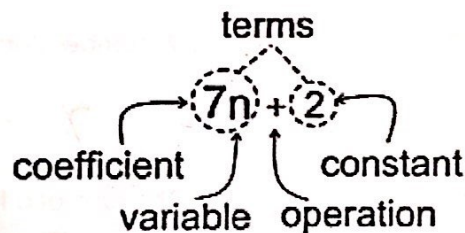
$5.95 \cdot x$

e. In the above problem, what value remained constant? \$5.95

f. What did that value represent? price of shipping 1 package

g. In the above problem, what continued to change? number of boxes

As we begin studying Algebra, one of the most important concepts you will encounter is the use of a symbol, typically a letter, to represent a quantity that varies or changes. The use of letters or symbols is called **variables**. When you perform the same mathematical process over and over, you can use an **algebraic expression** to represent the situation.



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

Scenario A: A school lunch costs \$2.10 per student. Determine how much is collected for each number of students. Show your work in the table

# of students	Cost
52	$2.10(52) = \$109.20$
78	$2.10(78) = \$163.80$
429	$2.10(429) = \$900.90$
x	$2.10x$

a. What value remains constant?

2.10

b. What does that value represent?

cost of 1 lunch

c. What continuously changes?

number of students

d. What expression represents the situation?

$2.10x$

e. What does the variable, x, represent?

number of students

Scenario B: The cost to rent a skating rink is \$215. The cost will be shared equally among all the people who attend the party. Determine how much each person will pay if the following amount of people attend.

# of people	Cost
25	$\frac{215}{25} = \$8.60$
43	$\frac{215}{43} = \$5.00$
81	$\frac{215}{81} = \$2.65$
x	$\frac{215}{x}$

a. What value remains constant?

$\$215$

b. What does that value represent?

total cost of skating rink

c. What continuously changes?

number of people attending
cost per person

d. What expression represents the situation?

$\frac{215}{x}$

e. What does the variable, x, represent?

number of people attending

Scenario C: A water tank hold 100 gallons of water. The tank is leaking at a rate of two gallons a minute. Determine how many gallons of water will be left in the tank if it leaks for the following amount of minutes.

# of minutes	# of gallons remaining
1	$100 - 2(1) = 98$
10	$100 - 2(10) = 80$
34	$100 - 2(34) = 32$
x	$100 - 2x$

a. What value(s) remains constant?

100, -2

b. What does that value represent?

100: starting amount
-2: loss of gallons per minute

c. What continuously changes?

number of minutes, gallons remaining

d. What expression represents the situation?

$100 - 2x$

e. What does the variable, x, represent?

number of minutes

Scenario D: 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	$3(18) + 50 = \$104$
30	$3(30) + 50 = \$140$
x	$3x + 50$

a. What value(s) remains constant?

3, 50

b. What does that value represent?

3: amount earned per word
50: money for participating

c. What continuously changes?

number of words spelled correctly
amount of money earned

d. What expression represents the situation?

$3x + 50$

e. What does the variable, x, represent?

number of words spelled correctly