

NAME:

Ch2: Introduction to Algebra

2-1: Variables and Expressions

Ex1) Evaluate the expression to find the missing values in the tables.

y	$6xy$
6	
10	
11	

Student Practice)

a) Evaluate the expression to find the missing values in the tables.

z	$5xz$
5	
10	
11	

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Ex2) A rectangle is 4 units wide. How many square units does the rectangle cover if it is 3, 4, 5, or 6 units long?

l	w	$l \times w$

Student Practice)

a) A rectangle is 3 units wide. How many square units does the rectangle cover if it is 3, 4, 5, or 6 units long?

l	w	$l \times w$

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2-2: Translate Between Words and Math

Operation	+	-	×	÷
Numerical Expression	$37 + 28$	$90 - 12$	8×48 or $8 \cdot 48$ or $(8)(48)$ or $8(48)$ or $(8)48$	$327 \div 3$ or $\frac{327}{3}$
Words	<ul style="list-style-type: none"> • 28 added to 37 • 37 plus 28 • the sum of 37 and 28 • 28 more than 37 	<ul style="list-style-type: none"> • 12 subtracted from 90 • 90 minus 12 • the difference of 90 and 12 • 12 less than 90 • take away 12 from 90 	<ul style="list-style-type: none"> • 8 times 48 • 48 multiplied by 8 • the product of 8 and 48 • 8 groups of 48 	<ul style="list-style-type: none"> • 327 divided by 3 • the quotient of 327 and 3
Algebraic Expression	$x + 28$	$k - 12$	$8 \cdot w$ or $(8)(w)$ or $8w$	$n \div 3$ or $\frac{n}{3}$
Words	<ul style="list-style-type: none"> • 28 added to x • x plus 28 • the sum of x and 28 • 28 more than x 	<ul style="list-style-type: none"> • 12 subtracted from k • k minus 12 • the difference of k and 12 • 12 less than k • take away 12 from k 	<ul style="list-style-type: none"> • 8 times w • w multiplied by 8 • the product of 8 and w • 8 groups of w 	<ul style="list-style-type: none"> • n divided by 3 • the quotient of n and 3

Ex1) Lake Superior is the largest lake in North America. Let a stand for the area in square miles of Lake Superior. Lake Erie has an area of 9,910 square miles. Write an expression to show how much larger.

Student Practice) Let p represent the number of colored pencils in a box. If there are 26 boxes on the shelf, write an algebraic expression to represent the total number of pencils on the shelf.

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Ex2)

a) 987 minus 12

b) x times 45

Student Practice)

a) 98 plus 3

b) x divided by 6

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Ex3) Write two phrases for each expression.

a) $\frac{16}{b}$

b) $(75)(32)$

Student Practice)

a) $\frac{c}{10}$

b) $(15)(21)$

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2-3: Translate Between Tables and Expressions

Ex1) Write an expression for the missing value in the table.

Spike's Age	Rusty's Age
2	6
3	7
4	8
a	

Ex2) Write an expression for the sequence in the table.

Position	1	2	3	4	n
Value	7	10	13	16	

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Ex3) A triangle has a base of 6 inches. The table shows the area of the triangle for different heights. Write an expression that can be used to find the area of the triangle when its height is h inches.

Base (in.)	Height (in.)	Area (in ²)
6	1	3
6	2	6
6	4	12
6	h	

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2-4: Equations and Solutions

Ex1) Determine whether the given value of each variable is a solution

a) $b - 447 = 1,203$ for $b = 1,650$

b) $27x = 1,485$ for $x = 54$

Student Practice)

a) $b - 647 = 1,003$ for $b = 1,600$

b) $25x = 1,500$ for $x = 60$

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Ex2) Cierra says that the park is 19 yards long. Chase says that the park is 664 inches long. Determine if these two measurements are equal.

Student Practice)

Alanna says that a dog can jump 3 feet. According to Emre dogs can jump 34 inches. Determine if these two measurements are equal

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2-5: Addition Equations

Ex1) Solve each equation. Check for answers.

a) $x + 87 = 152$

b) $72 = 18 + y$

Student Practice) Solve each equation. Check for answers.

a) $x + 30 = 130$

b) $70 = 20 + y$

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Ex2) Johnstown, Cooperstown, and Springfield are located in that order in a straight line along a highway. It is 12 miles from Johnstown to Cooperstown and 95 miles from Johnstown to Springfield. Find the distance d between Cooperstown and Springfield.

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2-6: Subtraction Equations

Ex1) Solve each equation. Check for answers.

a) $y - 23 = 39$

b) $78 = s - 15$

Student Practice) Solve each equation. Check for answers.

c) $z - 3 = 12$

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2-7: Multiplication Equations

Ex1) Solve each equation. Check for answers.

a) $5p = 75$

b) $16 = 8r$

Student Practice) Solve each equation. Check for answers.

a) $5p = 25$

b) $16 = 2r$

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Ex2)

a) The area of a rectangle is 56 square inches. Its length is 8 inches.

What is its width

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2-8: Division Equations

Ex1) Solve each equation. Check for answers.

c) $\frac{x}{7} = 5$

d) $13 = \frac{p}{6}$

Student Practice) Solve each equation. Check for answers.

c) $\frac{p}{5} = 5$

d) $8 = \frac{r}{2}$

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Ex2)

b) At Elk Meadows Park an aspen tree is one-third the height of a pine tree. If the aspen tree is 14 feet tall. How tall is the pine tree?

$$\text{Height of aspen} = \frac{\text{height of pine}}{3}$$