

Section Overview



Evaluating Algebraic Expressions

Lesson 2-1

Why? Evaluating algebraic expressions allows you to give meaning to symbolic representations, such as formulas and equations.

An **algebraic expression** contains one or more variables and may contain operation symbols.

Evaluate the algebraic expression $3x + 5$ for $x = 2$.

$$\begin{aligned} 3x + 5 \\ 3 \cdot 2 + 5 \\ 6 + 5 \\ 11 \end{aligned}$$

To **evaluate** an algebraic expression, substitute a number for the variable and then find the value.

The algebraic expression $3x + 5$ has the value 11 when $x = 2$.

Translating Between Words and Algebra

Lesson 2-2

Why? Translating between words and algebra is used to solve real-world problems involving mathematics.

Operation	Action	Words	Expression
+	Put together or combine.	<ul style="list-style-type: none"> • 5 added to 3 • 4 plus x • the sum of 7 and 2 • n more than 9 	<ul style="list-style-type: none"> • $5 + 3$ • $4 + x$ • $7 + 2$ • $9 + n$ <ul style="list-style-type: none"> Numerical expression Algebraic expression Numerical expression Algebraic expression
-	Find how much more or how much less.	<ul style="list-style-type: none"> • 4 subtracted from b • 12 minus 5 • the difference of 7 and 3 • 2 less than y • take away 1 from 9 	<ul style="list-style-type: none"> • $b - 4$ • $12 - 5$ • $7 - 3$ • $y - 2$ • $9 - 1$ <ul style="list-style-type: none"> Algebraic expression Numerical expression Numerical expression Algebraic expression Numerical expression
×	Put together groups of equal parts.	<ul style="list-style-type: none"> • t times 7 • 6 multiplied by s • the product of 4 and 3 	<ul style="list-style-type: none"> • $t \times 7$, or $7t$ • $6 \times s$, or $6s$ • 4×3, or $(4)(3)$ <ul style="list-style-type: none"> Algebraic expression Algebraic expression Numerical expression
÷	Separate into equal groups.	<ul style="list-style-type: none"> • h divided by 2 • the quotient of 15 and 5 	<ul style="list-style-type: none"> • $h \div 2$, or $\frac{h}{2}$ • $15 \div 5$, or $\frac{15}{5}$ <ul style="list-style-type: none"> Algebraic expression Numerical expression

Translating Between Tables and Expressions

Lesson 2-3

Why? Translating between tables and expressions allows students to generalize a pattern and make predictions.

Number of items	Total cost
1	12
2	24
3	36
4	48
n	$12n$

$$\begin{aligned} 1 \cdot 12 &= 12 \\ 2 \cdot 12 &= 24 \\ 3 \cdot 12 &= 36 \\ 4 \cdot 12 &= 48 \end{aligned}$$

Position	Value of term
1	5
2	8
3	11
4	14
n	$3n + 2$

$$\begin{aligned} 1 \cdot 3 + 2 &= 5 \\ 2 \cdot 3 + 2 &= 8 \\ 3 \cdot 3 + 2 &= 11 \\ 4 \cdot 3 + 2 &= 14 \end{aligned}$$