

2.1 Variables and Expressions

p. 54 2/26/18

Sep 23-10:45 AM

A **variable** is a letter or symbol that represents a quantity that can change.

Examples: letter

a, b, x, y

A **constant** is a quantity that does not change.

Examples:

number

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An **algebraic expression** contains one or more variables and may contain operation symbols. So $p \times 7$ is an algebraic expression.

Algebraic Expressions	NOT Algebraic Expressions
$150 + y$	$85 \div 5$
$35 \times w + z$	$10 + 3 \times 5$

$4 + x$

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Evaluate the expression to find the missing values in the table.

values	expression	
y	$5 \times y$	
16	80	$5 \cdot 16$
27	135	$5 \cdot 27$
35	175	$5 \cdot 35$

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Evaluate the expression to find the missing values in the table.

z	$z \div 5 + 4$	
20	20	$20 \div 5 + 4$
45	25	$45 \div 5 + 4$
60	28	$60 \div 5 + 4$

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Evaluate the expression to find the missing values in the table.

x	$x \div 9$	
18	2	$18 \div 9$
36	4	$36 \div 9$
54	6	$54 \div 9$

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Evaluate the expression to find the missing values in the table.

z	$8 \times z + 8$
7	64
9	80
11	96

$8 \times 7 + 8$
 $8 \times 9 + 8$
 $8 \times 11 + 8$

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You can write multiplication and division expressions without using the symbols \times and \div .

Instead of . . .	You can write . . .
$x \times 3$	$x \bullet 3$ $x(3)$ $3x$ $3(x)$
$35 \div y$	$\frac{35}{y}$

Writing Math
 When you are multiplying a number times a variable, the number is written first. Write "3x" not "x3." Read 3x as "three x."

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x	$x^2 - 5$
10	95
7	44
5	20

$10^2 - 5$
 $7^2 - 5$
 $5^2 - 5$

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A rectangle is 6 units wide. How many square units does the rectangle cover if it is 2, 3, 4, or 5 units long?

l	w	$l \times w$
2	6	12
3	6	18
4	6	24
5	6	30

$2 \cdot 6$
 $3 \cdot 6$
 $4 \cdot 6$
 $5 \cdot 6$

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A rectangle is 3 units wide. How many square units does the rectangle cover if it is 2, 3, 4, or 5 units long?

l	w	$l \times w$
2	3	6
3	3	9
4	3	12
5	3	15

$2 \cdot 3$
 $3 \cdot 3$
 $4 \cdot 3$
 $5 \cdot 3$

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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	$l \times w$
3	4	12
4	4	16
5	4	20
6	4	24

$3 \cdot 4$
 $4 \cdot 4$
 $5 \cdot 4$
 $6 \cdot 4$

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Evaluate each expression for the given value of the variable.

PEMDAS

$$3h + 2 \text{ for } h = 10$$

$$\begin{array}{r} 3(10) + 2 \\ 30 + 2 \\ 32 \end{array}$$

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Evaluate each expression for the given value of the variable.

PEMDAS

$$2x^2 \text{ for } x = 3$$

$$\begin{array}{r} 2(3)^2 \\ 2(9) \\ 18 \end{array}$$

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Evaluate each expression for the given value of the variable.

$$t - 7 \text{ for } t = 20$$

$$\begin{array}{r} 20 - 7 \\ 13 \end{array}$$

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Evaluate each expression for the given value of the variable.

$$\frac{c}{7} \text{ for } c = 56$$

$$\frac{56}{7} = 8$$

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Evaluate each expression for the given value of the variable.

$$3x + 17 \text{ for } x = 13$$

$$\begin{array}{r} 3(13) + 17 \\ 39 + 17 \\ 56 \end{array}$$

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Evaluate each expression for the given value of the variable.

$$5p \text{ for } p = 12$$

$$\begin{array}{r} 5(12) \\ 60 \end{array}$$

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