

1.7 Variables & Algebraic Expressions

p. 34 10-3-17

Sep 23-9:20 AM

Variable-
a letter that
represents a
quantity that
changes

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Constant-
a value that
does not change

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Evaluate- to solve

Algebraic Expression

$$x + 5$$

$$a - 10$$

$$b \div 20$$

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**Algebraic expression
should include**

- 1 or more variables
- operation (+, -, \times , \div)
- constant (10, 5, 200)

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expression: $b - 5$

$$9 \cdot a \quad x + 10$$

$$9 * a \quad 9a$$

equation:

$$9a = 81 \quad x + 10 = 15$$

$$b - 5 = 10$$

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Evaluate $k + 9$ for each value of k .

A. $k = 5$
 $5 + 9 = 14$

B. $k = 2$
 $2 + 9 = 11$

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Multiplication		Division	
$7t$	$7 \cdot t$	$\frac{q}{2}$	$q/2$
$7(t)$	$7 \times t$	$q \div 2$	
ab	$a \cdot b$	$\frac{s}{r}$	s/r
$a(b)$	$a \times b$	$s \div r$	

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Evaluate the expression for the given value of the variable.

A. $4x - 3$ for $x = 2$

$4x - 3$ for $x = 2$

$4(2) - 3$ Substitute 2 for x .

$8 - 3$ Multiply.

5 Subtract.

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B. $s \div 5 + s$, for $s = 15$

$15 \div 5 + 15$ Substitute 15 for s .

$3 + 15$ Divide.

18 Add.

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Example 3

Evaluate $\frac{6}{a} + 4b$, for $a = 3$ and $b = 2$.

$\frac{6}{3} + 4(2)$ Substitute 3 for a and 2 for b .

$2 + 8$ Divide and multiply from left to right.

10 Add.

Try This

1. Evaluate $a + 6$ for the value of a .

$a = 3$
 $3 + 6 = 9$

Oct 6-9:55 AM

Lesson Quiz

Evaluate $n + 7$ for each value of n .

1. $n = 25$ $25 + 7 = 32$ 2. $n = 31$ $31 + 7 = 38$

Evaluate each algebraic expression for the given value of the variables

3. $6y - 5$ for $y = 7$ $6 \cdot 7 - 5 = 42 - 5 = 37$

4. $4x^2 + 3x$ for $x = 6$

5. $\frac{56}{x} + 3y$ for $x = 4$ and $y = 3$ $\frac{56}{4} + 3 \cdot 3 = 14 + 9 = 23$

6. The expression $7d$ gives the number of days in d weeks. Evaluate $7d$ for $d = 12$. How many days are in 12 weeks? $7 \cdot 12 = 84$ days

4. $4x^2 + 3x$, $x = 6$ $(4x)^2$

$4(6^2) + 3(6)$ 36

$4(36) + 18$ $\times 4$

$144 + 18 = 162$ 144

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