



Substituting Variables

The Language of Algebra

Algebra is a type of maths that uses variables to represent numbers. In this unit, you will learn the language of algebra and how to substitute variables into algebraic expressions.

Variables

Variables represent numbers or quantities.
The value they represent can vary.

EXAMPLE: $x = 8$

Expressions

Expressions are like number sentences with variables, numbers and mathematical symbols ($\times$, $\div$, $+$, $-$ and $=$)

EXAMPLE: $2x + 1$

Evaluate

Evaluating an expression in algebra is to substitute (replace) variables with numbers to find an answer.

EXAMPLE:

Evaluate $2x + 1$ if $x = 2$
 $(2 \times 2) + 1 = 4 + 1 = 5$ The answer is 5.

Instructions: Evaluate the algebraic expressions below.

1

Evaluate
 $6b - a^2 + 12ab$
if $a = 7$, $b = 10$

2

Evaluate
 $6x^2 - 19xy + 3y$
if $x = 5$, $y = 4$



3

Evaluate
 $9a(8b - 5) - 3ba$
if $a = 7, b = 2$

4

Evaluate
 $12t(6t - 2u) + u^2$
if $t = 6, u = 8$

5

Evaluate
 $\frac{hg^2 + 5h}{-3g} - 17$
if $g = -4, h = 8$

6

Evaluate
 $5c^2d + 9c(5 - d^2) - 15$
if $c = 7, d = 2$

7

Evaluate
 $kj - 2k + 3j^2$
if $j = 9, k = 11$

8

Evaluate
 $5m(-n)^2 - 8mn$
If $m = 10, n = 6$



9

Evaluate
$$\frac{11^2 - 2c^2 + 2b}{-bc}$$

if $b = 14, c = -3$

10

Evaluate
$$-3(uv - 2u^2) - 5vu$$

if $u = 7, v = 2$

11

Evaluate
$$9e^2 - 5f^2 - 4ef$$

if $e = 9, f = 4$

12

Evaluate
$$-12p(-q)^2 - 3^2p$$

If $p = -7, q = -6$

13

Evaluate
$$\frac{3s^2 - 4r}{-6} + 8r(s - 9)$$

if $r = -3, s = 6$

14

Evaluate
$$-3^2(-y)^2 + \frac{yx}{2} - 5$$

If $x = 6, y = 9$



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Instructions: Evaluate the algebraic expressions below.

1

Evaluate
 $5bc - 3c^2 + 8b$
if $b = 3$, $c = 5$

2

Evaluate
 $ef - 8f + 3e^2$
if $e = 4$, $f = -3$



3

Evaluate
 $-p^2 + 20(o^2 - p) - 9$
if $o = 7, p = 2$

4

Evaluate
 $3nm + n(-m)^2 + 9$
If $m = -4, n = -3$

5

Evaluate
 $13 - \frac{k^2 + 7l}{kl} + 2l^2$
if $k = 5, l = 6$

6

Evaluate
 $(-3uv)^2 + 7u^2 - 2v$
if $u = -1, v = -4$

7

Evaluate
 $\frac{7qr^2 + 12r}{-2q} - 9r$
if $q = 2, r = -2$

8

Evaluate
 $5d^2(c - 12d) - c^2$
if $c = 7, d = 2$



9

Evaluate
 $3x - \frac{(-xy)^2}{5} + 13y$
If $x = 5, y = -2$

10

Evaluate
 $-2w^2 - w(x^2 - 2x)$
if $w = 6, x = -5$

11

Evaluate
 $-t(8 - 2s^2) + ts^2$
if $s = 7, t = 12$

12

Evaluate
 $3^2(-l)^2 - \frac{lm}{2}$
If $l = -6, m = 6$

13

Evaluate
 $\frac{ih - (-3h)^2}{2} + 2^2i$
If $h = 4, i = 8$

14

Evaluate
 $\frac{z^2 - 4y - zy}{y^2} - 5zy$
if $y = -4, z = 6$