

Lesson 1.1

Variables and Expressions

An expression is a mathematical phrase that can be made up of variables, numbers and operations.

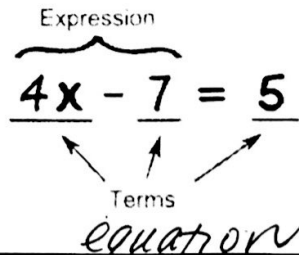
A variable is a symbol, usually a letter, that represents an unknown number.

A constant is a term that has no variable.

Terms are numbers, variables, or the product of a number and variable.

How many terms?
(3)

Constants (1)



Writing Expressions

The following common words and phrases indicate addition, subtraction, multiplication, division, and equals.

Addition	Subtraction	Multiplication	Division	Equals
plus the sum of increased by more than added to combined, together total of	minus difference of difference between decreased by fewer than less than fewer than subtracted from diminished by	times product of multiplied by of twice doubled tripled	divided by the quotient of per out of the ratio of each half (divide by 2) a third (divide by 3)	is gives yields

Example 1: Translate the words into mathematics expressions. Use the variable that you see in parentheses.

- a) A number (x) increased by 15 $x + 15$
- b) The difference of a number (y) and 6 $y - 6$
- c) The product of a number (t) and 4 $t \cdot 4$ / $4t$
- d) The quotient of a number (z) and 3 $z / 3$ / $z \div 3$

- e) Six times a number (b) plus 14 $6b + 14$
 f) Five times a number (h) decreased by 7 $5h - 7$
 g) A number (e) divided by 3, increased by 6 $e/3 + 6$
 h) The quotient of a number (k) and 2, minus 17 $k/2 - 17$

Example 2: Translate each of the following one-step expressions into words.

- a) $x+5$ A number x increased by 5
 b) $y-8$ A number y minus 8
 c) $7k$ The product of 7 and a number k
 c) $f/9$ A number f divided by 9

Example 3: Translate each of the following two-step expressions into words.

- a) $4x+3$ The product of 4 and a # x increased by 3
 b) $8y-2$ 8 multiplied by a # y minus 2
 c) $7+f/2$ 7 increased by a # f divided by 2

Example 4: If Tom is t years old, translate the words into mathematics expressions.

- a) Twice tom's age $2t$
 b) Eight years older than Tom $8 + t$
 c) 20 years younger than Tom $t - 20$
 d) One third of Tom's age $1/3 t$
 e) Six more than five times Tom's age $6 + 5t$
 f) 40 years minus 8 times Tom's age $40 - 8t$