

Key idea: look for operation words first, then pay attention to word order.

ADDITION

+

- plus
- added to
- increased by
- more than
- greater than
- sum of
- total of
- combined with
- altogether
- in all

SUBTRACTION

-

- minus
- decreased by
- less than
- fewer than
- difference of
- difference between
- reduced by
- diminished by
- take away
- subtracted from

MULTIPLICATION

X

- times
- multiplied by
- product of
- twice
- double
- thrice
- triple
- four times
- groups of
- of (often means multiply)

DIVISION

÷

- divided by
- quotient of
- ratio of
- per
- shared equally
- split equally
- out of
- over (fraction bar)
- half of
- one-third of

EQUAL TO

=

- equals
- is equal to
- is / was
- becomes
- gives
- results in
- yields
- amounts to
- is equivalent to
- is the same as

COMPARISON WORDS CAN ALSO SIGNAL ADDITION OR SUBTRACTION

ADDITION (+) - MORE-THAN IDEAS

older, bigger, longer, faster,
stronger, taller, heavier

SUBTRACTION (-) - LESS-THAN IDEAS

younger, smaller, shorter, slower,
weaker, fewer, lighter

Reminder: These words are clues, not rigid rules. Read the whole sentence before translating.

1. WORD ORDER MATTERS

Some phrases reverse the order you see in the sentence.

5 more than x

$$x + 5$$

"more than" puts the 5 after x

5 less than x

$$x - 5$$

"less than" reverses the order

5 subtracted from x

$$x - 5$$

"subtracted from" reverses the order

x decreased by 5

$$x - 5$$

"decreased by" keeps the order

2. GROUPED WORDS OFTEN NEED PARENTHESES

Words like "sum," "difference," and "quantity" often create a group.

twice the sum of x and 3

$$2(x + 3)$$

5 times the difference of x and 2

$$5(x - 2)$$

the quotient of x + 6 and 4

$$(x + 6) / 4$$

3 less than twice a number

$$2n - 3$$

Two common reversal phrases:
"less than" and "subtracted from"

3. QUICK TRANSLATION EXAMPLES

VERBAL PHRASE	ALGEBRAIC EXPRESSION
the sum of a number and 9	$n + 9$
12 fewer than a number	$n - 12$
the product of 7 and x	$7x$
a number divided by 6	$n / 6$
4 more than twice x	$2x + 4$
half of the sum of x and 10	$(x + 10) / 2$