

## Math Signal Words

Often working on word problems is a difficult task because a student doesn't know how to translate the words in the problem into mathematical symbols. The following examples may help.

### Words that Signal Addition:

And, Made Larger, More Than, In Addition, Sum, In Excess, Added to, Plus, Add, Greater, Increased by, Raised by

### Examples:

1. Thirty-fix and eighty-six are what?

Translation:  $35 + 86 = (?)$

2. Three hundred sixteen increased by eight is what amount?

Translation:  $316 + 8 = (?)$

3. Ellen has sixteen candy bars to sell. If this amount is raised by twenty, how many will she have?

Translation:  $16 + 20 = (?)$

### Words that Signal Subtraction:

Decreased by, Subtract, Difference, From, Made Smaller by, Diminished by, Reduce, Less than, Minus, Take Away

### Examples:

1. Eighty-nine is how much less than one hundred forty-seven?

Translation:  $147 - 89 = (?)$

2. Seventy-six decreased by sixteen is what?

Translation:  $76 - 16 = (?)$

3. Find the difference between 19 and 62.

Translation:  $62 - 19 = (?)$

4. Tommy has two hundred fifty-three baseball cards. If his collection is made smaller by thirty cards, how many will he have?

Translation:  $253 - 30 = (?)$

### Words that Signal Multiplication:

(The answer to a multiplication problem is called a product.)

Product, Multiplied by, Times as much, Of, Times, Doubled, tripled, etc., Percent of, Interest on.

### Examples:

1. Susan runs around her block six times every day. If the distance around the block is  $\frac{1}{2}$  (.5) of a mile, how many miles a day does she run?

Translation:  $\frac{1}{2} \times 6 = (?)$

2. Seventeen tripled equals what?

Translation:  $17 \times 3 = (?)$

3. What is the product of twenty, six, and sixteen?

Translation:  $(?) = 20 \times 6 \times 16$

4. What is 37% of 500?

Translation:  $(?) = .37 \times 500$

### Words that Signal Division:

(The answer to a division problem is called a quotient. The number being divided is called a dividend and the number doing the dividing is called the divisor.)

Per, Quotient, Go(es) into, How many, Divided by, Contained in

### Examples:

1. How many times does 11 go into 121?

Translation:  $121 \div 11 = (?)$  or  $\frac{121}{11}$

2. What is the quotient with a dividend of forty-four and the divisor of 4?

Translation:  $4 \div 44 (?)$  or  $\frac{44}{4}$

3. How many gallons of oil are contained in 400 quarts? (Note: 4 quarts = a gallon)

Translation:  $400 \div 4 = (?)$  or  $\frac{400}{4}$

### Words that Signal Equality:

Is, Will be, Equal, Was, Results

### Examples:

1. How many of the 18 jobs will be left after reducing them by half?

Translation:  $18 - \frac{18}{2} = (?)$

2. Seven percent of forty is what?

Translation:  $.07 (40) = (?)$

Words that Signal Inequality:

Greater than  $>$

Greater than or equal to  $\geq$

Less than  $<$

Less than or equal to  $\leq$

Examples:

1. Four plus a number is greater than seven.

Translation:  $4 + X > 7$

2. Fourteen divided by a number is less than or equal to two.

Translation:  $\frac{14}{x} < 2$

Quantity is Signaled by ( )

Example:

1. Four times the quantity seven plus X is equal to 40.

Translation:  $4 ( 7 + X ) = 40$

Translating English Words into Algebraic Expressions.

Ten more than X =  $X + 10$

A number added to 5 =  $5 + X$

A number increased by 13 =  $X + 13$

5 less than 10 =  $10 - 5$

A number decreased by 7 =  $X - 7$

Difference between X and 3 =  $X - 3$

Twice a number =  $2X$

Ten percent of X =  $.10X$

Ten times X =  $10X$

Quotient of X and 3 =  $\frac{X}{3}$

The product of 2 times a number is 10 =  $2X = 10$

5 times the sum of X and 2 =  $5 ( X + 2 )$

7 is greater than X =  $7 > X$

The sum of 5X and 10 is equal to the product of X and 15 =  $5X + 10 = 15X$

Ten subtracted from 10 times a number is that number plus 5 =  $10X - 10 = X + 5$

The sum of two consecutive integers =  $( X ) + ( X + 1 )$

The sum of two consecutive odd integers =  $( X ) + ( X + 2 )$

The sum of two consecutive even integers =  $( X ) + ( X + 2 )$