

## *Translating Words into Algebraic Expressions*

<b>Operation</b>	<b>Word Expression</b>	<b>Algebraic Expression</b>
<b><i>Addition</i></b>	<i>Add, Added to, the sum of, more than, increased by, the total of, plus</i>	+
	<i>Add x to y</i>	<b>x + y</b>
	<i>y added to 7</i>	<b>7 + y</b>
	<i>The sum of a and b</i>	<b>a + b</b>
	<i>m more than n</i>	<b>n + m</b>
	<i>p increased by 10</i>	<b>p + 10</b>
	<i>The total of q and 10</i>	<b>q + 10</b>
	<i>9 plus m</i>	<b>9 + m</b>
<b><i>Subtraction</i></b>	<i>Subtract, subtract from, difference, between, less, less than, decreased by, diminished by, take away, reduced by, exceeds, minus</i>	-
	<i>Subtract x from y</i>	<b>y - x</b>
	<i>From x, subtract y</i>	<b>x - y</b>
	<i>The difference between x and 7</i>	<b>x - 7</b>
	<i>10 less m</i>	<b>10 - m</b>
	<i>10 less than m</i>	<b>m - 10</b>
	<i>p decreased by 11</i>	<b>p - 11</b>
	<i>8 diminished by w</i>	<b>8 - w</b>
	<i>y take away z</i>	<b>y - z</b>
	<i>p reduced by 6</i>	<b>p - 6</b>
	<i>x exceeds y</i>	<b>x - y</b>
	<i>r minus s</i>	<b>r - s</b>
<b><i>Multiplication</i></b>	<i>Multiply, times, the product of, multiplied by, times as much, of</i>	×
	<i>7 times y</i>	<b>7y</b>
	<i>The product of x and y</i>	<b>xy</b>
	<i>5 multiplied by y</i>	<b>5y</b>
	<i>one-fifth of p</i>	<b><math>\frac{1}{5}p</math></b>
<b><i>Division</i></b>	<i>Divide, divides, divided by, the quotient of, the ratio of, equal amounts of, per</i>	÷
	<i>Divide x by 6</i>	$\frac{x}{6}$ <b>or</b> <b>x ÷ 6</b>
	<i>7 divides x</i>	$\frac{x}{7}$ <b>or</b> <b>x ÷ 7</b>
	<i>7 divided by x</i>	$\frac{7}{x}$ <b>or</b> <b>7 ÷ x</b>

<b>Division</b> (continued)	<i>The quotient of y and 5</i>	$\frac{y}{5}$ or $y \div 5$
	<i>The ratio of u to v</i>	$\frac{u}{v}$ or $u \div v$
	<i>u separated into 4 equal parts</i>	$\frac{u}{4}$ or $u \div 4$
	<i>5 parts per 100 parts</i>	$\frac{5}{100}$
<b>Power</b>	<i>The square of y</i>	$y^2$
	<i>The cube of k</i>	$k^3$
	<i>t raised to the fourth power</i>	$t^4$
<b>Equals</b>	<i>Is equal to, the same as, is, are, the result of, will be, are, yields</i>	=
	<i>x is equal to y</i>	$x = y$
	<i>p is the same as q</i>	$p = q$
<b>Multiplication by 2</b>	<i>Two, two times, twice, twice as much as, double</i>	2
	<i>Twice z</i>	2z
	<i>y doubled</i>	2y
<b>Multiplication by <math>\frac{1}{2}</math></b>	<i>Half of, one-half of, half as much as, one-half times</i>	$\frac{1}{2}$
	<i>Half of u</i>	$\frac{u}{2}$
	<i>one-half times m</i>	$\frac{1}{2}m$

### Geometry Problems

Concept	Word Expression	Algebraic Expression
<i>Area of a square</i>	<i>Side Squared</i>	$A = s^2$
<i>Perimeter of a square</i>	<i>Four times the side</i>	$P = 4s$
<i>Area of a rectangle</i>	<i>Length times width</i>	$A = L \times W$
<i>Perimeter of a rectangle</i>	<i>Two lengths plus two widths</i>	$P = 2L + 2W$
<i>Angles of a Triangle</i>	<i>The sum of the angles is <math>180^\circ</math></i>	$\angle A + \angle B + \angle C = 180$

### Word Problem Relationships

<b>Consecutive Integer</b>	<i>Three consecutive integers</i>	$x, x + 1, x + 2$
	<i>Three consecutive odd (even) integers</i>	$x, x + 2, x + 4$
<b>Motion</b>	<i>Rate times Time equals Distance</i>	$R \times T = D$
<b>Mixture</b>	<i>Price times Quantity equals Total Value</i>	$P \times Q = T$
<b>% Mixture</b>	<i>% Strength times Quantity equals Total Amount</i>	$P \times Q = T$
<b>Digits</b>	<i>A two digit number</i>	$10t + u$

