

Translating Words into Algebraic Expressions

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

| | | |
|---|---|-----------------------------|
| Division (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> | $\frac{5}{100}$ |
| Power | <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 |
| Equals | <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> | $p = q$ |
| Multiplication by 2 | <i>Two, two times, twice, twice as much as, double</i> | 2 |
| | <i>Twice z</i> | $2z$ |
| | <i>y doubled</i> | $2y$ |
| Multiplication by $\frac{1}{2}$ | <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 180°</i> | $\angle A + \angle B + \angle C = 180$ |

Word Problem Relationships

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

