

CREE DICTIONARY OF MATHEMATICAL TERMS WITH VISUAL EXAMPLES

CREE DICTIONARY OF MATHEMATICAL TERMS WITH VISUAL EXAMPLES

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UNIVERSITY OF REGINA
REGINA



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Foreword

Dear Reader,

I am happy to present the new edition of the Cree Dictionary of Mathematical Terms. The previous edition, co-authored by Willie Ermine, Arzu Sardarli, and Ida Swan, was published in 2017 in a paper format. It was reviewed by Elder Jerry Saddleback, Professor Solomon Ratt (First Nations University of Canada) and a Cree-speaking teacher Nelson Benjamin Merasty. The project was supported by the First Nations University of Canada. All copies of the Dictionary were donated to First Nations schools across Canada. Since then, I have received many exciting comments from educators and students about this first Cree Dictionary of mathematical terms. Along with the positive feedback, the respondents keep addressing their request for additional copies. Considering the demand of our academic community, Ida and I decided to use the advantages of modern publication tools to develop an electronic version of the Dictionary. Working on the new version, we analyzed and considered the comments of readers of the first version. We also developed visual examples with Indigenous elements with the help of the Indigenous artist Larissa Kitchemonia. This edition was reviewed by Elder George McLeod (Stanley Mission) and Cree artist Lionel Peyachew. The proofreading was conducted by Steven Swan. The project was supported by the University of Regina within the Open Educational Resources Program.

I would like to take this opportunity and thank Elders George McLeod, Jerry Saddleback and Willie Ermine, professors Solomon Ratt and Lionel Peyachew, artist Larissa Kitchemonia, and reviewers Nelson Benjamin Merasty and Steven Swan on behalf of my co-author Ida Swan and myself for their outstanding contribution to this Dictionary.

I would like to thank the Office of the Associate Vice-President Academic, the University of Regina, for their support during our work on the project; special thanks to Open Education & Publishing Program Manager, Isaac Mulolani, for his patience and helpful advice that I received throughout my work on this project.

I also would like to express our most profound appreciation to readers of the first version of the Dictionary for their feedback. Working on this version, we did our best to consider all helpful comments and corrections. The Pressbook platform provides the opportunity to keep improving the Dictionary. I hope to receive further feedback from our respected readers. The comments can be sent to my email address, asardarli@fnuniv.ca

Sincerely yours,

Dr. Arzu SARDARLI

Professor of Physics and Mathematics
Indigenous Knowledge and Science
First Nations University of Canada

tânisi!

This is the first Cree Dictionary of mathematical terms. The project coordinator Arzu Sardarli writes that this project “was a challenging two-year endeavor.” How true those words are especially when you consider that the people involved in translating English mathematical terms into Cree all come from different communities and thus speak different dialects.

Jerry Saddleback is a Northern Plains (Y) dialect speaker from Maskwacis, Alberta; Willie Ermine is a Plains Cree (Y) dialect speaker from Sturgeon Lake First Nation, Saskatchewan; and Ida Swan is a Woods Cree (TH) dialect speaker from Pelican Narrows, Saskatchewan. What they put together is an amazing body of work that will be useful in Cree Immersion schools.

This Dictionary of mathematical terms in Cree is a wonderful resource. Congratulations to the project team and to the project coordinator Arzu Sardarli for providing us with a much needed resource.

Solomon RATT

Associate Professor of Cree Language Studies

First Nations University of Canada
[for the previous edition of the Dictionary]

The video of the interview with Solomon Ratt is available on the following website: <https://youtu.be/4hqqMO8tejo>

Another vital Cree education tool developed by Arzu Sardarli, Ida Swan and illustrated by one of our own fine art students, and soon to be master's degree recipient, Larissa Kitchemonia. I commend you all for providing other alternative learning strategies by combining Mathematics, Indigenous language, and Indigenous Art. The Cree Dictionary of Mathematical Terms will be the departure point for other educational tools in the future to come.

Lionel PEYACHEW

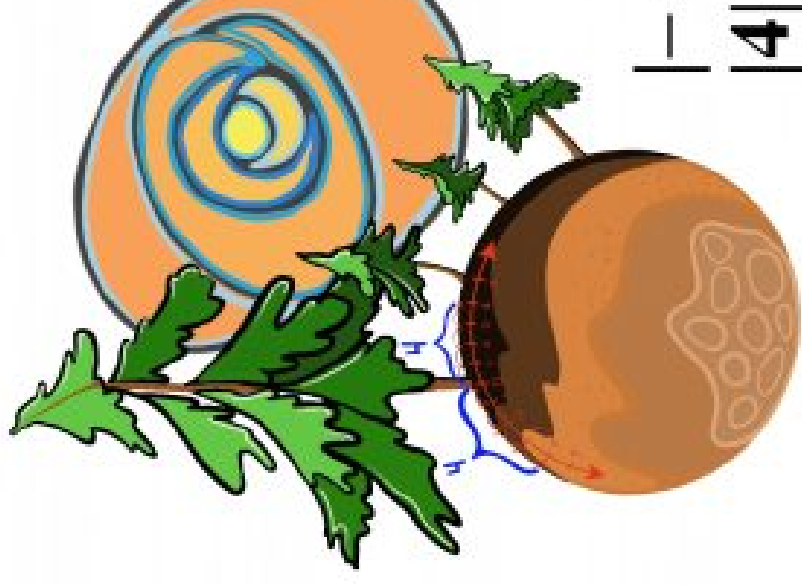
Associate Professor, Indigenous Art
First Nations University of Canada

A



Absolute value

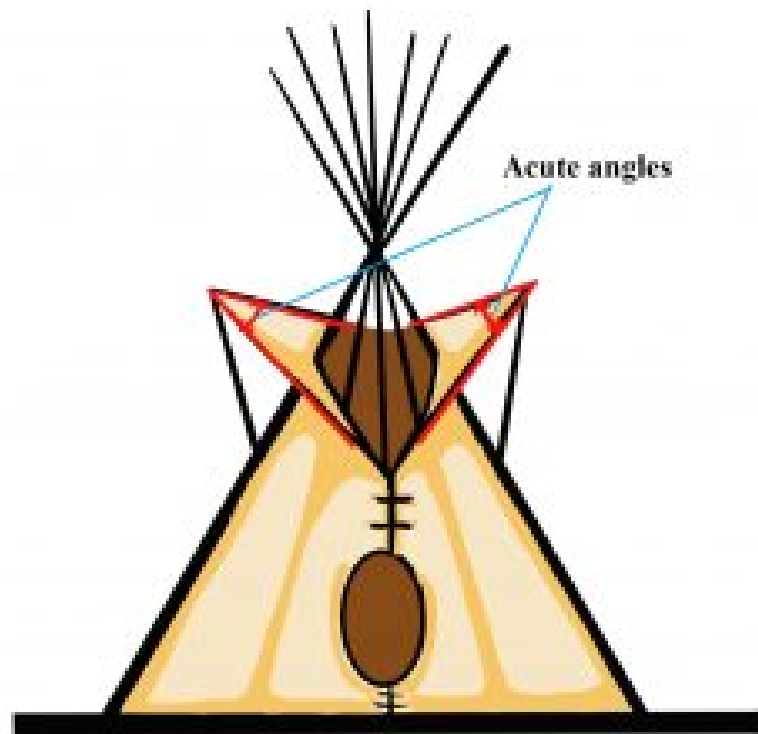
The absolute value of an integer is its distance from zero on the number line. [8]



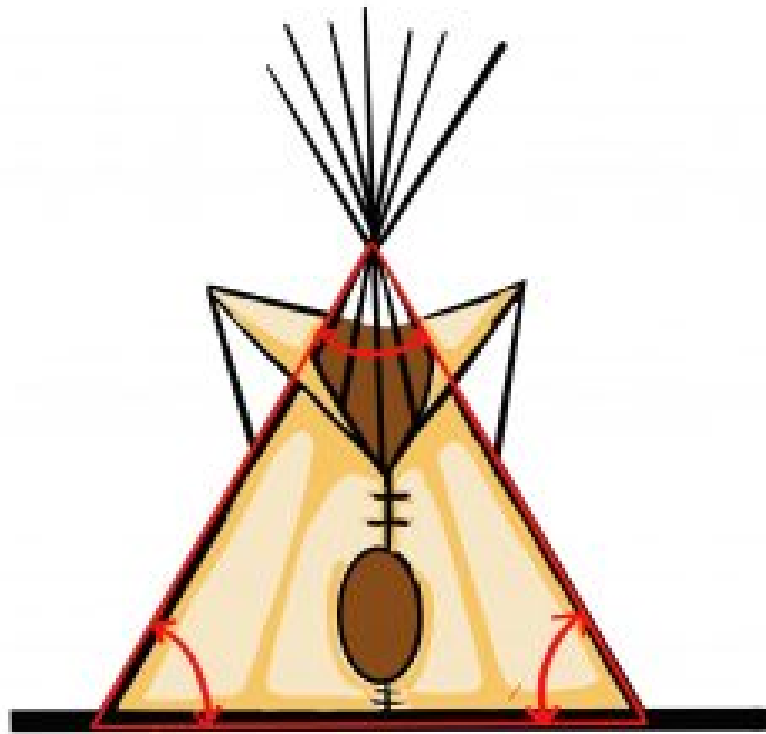
Acute angle

An angle that measures less than 90 degrees. [8]

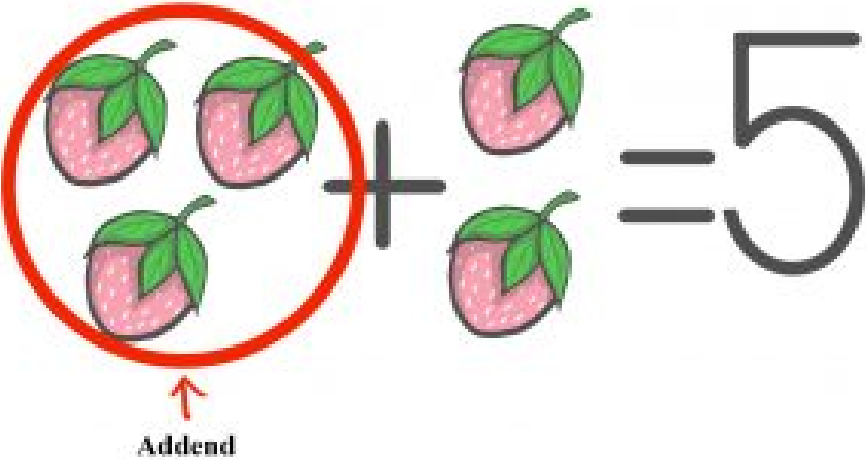
nōti-kahkahkīyaw

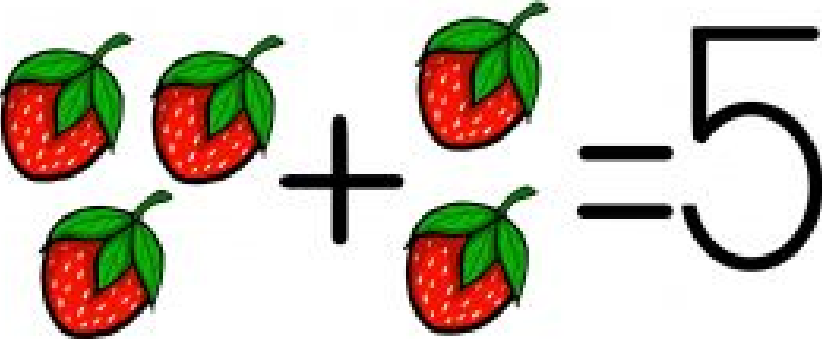


| | | |
|-----------------------|--|--|
| Acute triangle | An acute triangle has three angles that measure between 0 and 90 degrees. [8] | (1) otōskwana-nisto (2) ati-isko keka-mitahtātomitanaw |
|-----------------------|--|--|



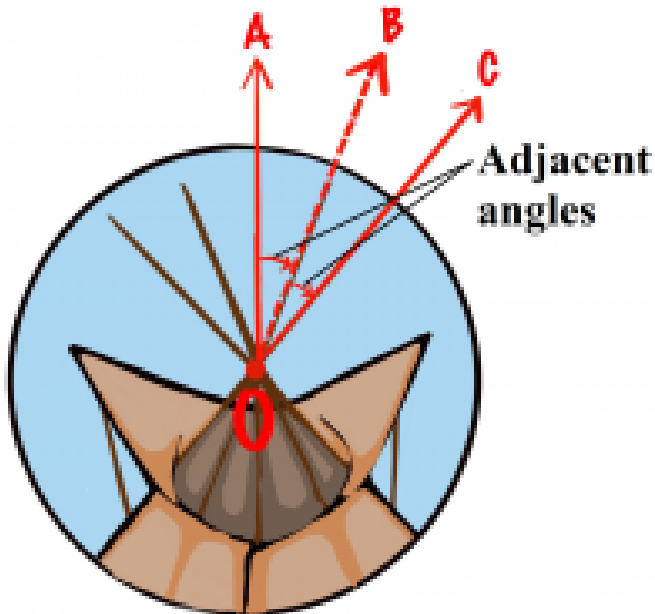
| | | |
|--------------|--|---------------|
| Add | To combine two or more quantities to find one quantity, called a total or a sum. [1] | māmiwi-akihta |
| 3 + 4 | | |

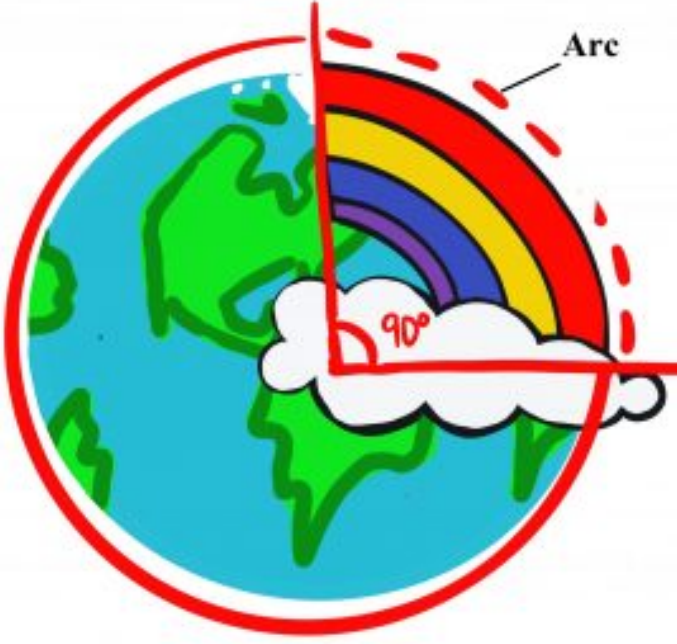
| | | |
|--|---|-------------------|
| Addend | Addends are numbers being added together. [8] | māmiwi-akihtasona |
|  | | |

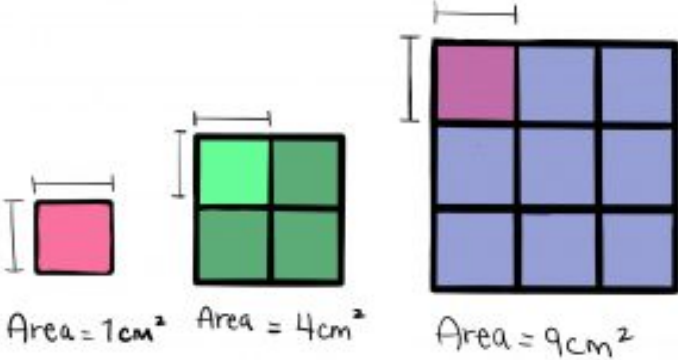
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|---|---|------------------|
| Addition | Mathematical operation of combining two or more numbers into a sum. [1] | takohakihcikewin |
|  | | |

| | | |
|--------------------------------------|--|-------------------|
| Addition property of equality | The property that states that if you add the same number to both sides of an equation, the sides remain equal (i.e., the equation continues to be true.) [8] | nāmawi-akicikiwin |
| $5 = 5$ $2 + 3 = 3 + 2$ | | |

| | | |
|-------------------------|--|----------|
| Additive inverse | An additive inverse is the opposite of a given number. [8] | tēyakwac |
| $- 5 \text{ and } + 5$ | | |

| | | |
|--|--|---|
| Adjacent angles | Adjacent angles are angles that are side by side and have a common vertex and ray. [8] | (1) thikītakak (Woodland) (2) wihkwehtakāw (Plain) |
|  | | |
| Algebra | Algebra is the branch of mathematics concerning the study of the rules of operations and relations, and the constructions and concepts arising from them, including terms, polynomials, equations and algebraic structure. [8] | algebra |
| Algebraic equation | An algebraic equation is an equation that includes one or more variables. [8] | algebra oci masinayikiwin |
| Algebraic expression | An algebraic expression is a mathematical expression that consists of variables, numbers and operations. The value of this expression can change. | algebra masinayikiwina |
| $5x^2 - 3\sqrt[3]{x} - 2y$ $0.5p - 3q + 12s - t$ $4a + 3b$ | | |
| Algebraic numbers | An algebraic number is a number that is a root of a non-zero polynomial in one variable with rational coefficients. [8] | algebra akihcikewina |
| Angle | An angle is a figure formed by two rays that have a common endpoint. [8] | (1) wihkwētakāw (2) thikītakaw (Woodland) |
| Angle measure | The size of an angle is measured in degrees. [8] | wihkwētakāw kayispicak |

| | | |
|--|--|-------------------------------------|
| Arc | An arc is a part of a circle named by its endpoints. [8] | (1) wāki-yaw (2) wakāw (Wodland) |
|  | | |

| | | |
|--|---|-------|
| Area | Area is defined as the number of square units that cover a closed figure. [8] | askiy |
|  | | |

| | | |
|-------------------------|--|---------------------|
| Area of a circle | The area of a circle is the number of square units inside that circle. [8] | pihcāyihk wāwiyiyaw |
| $A = \pi r^2$ | | |


| | | |
|--------------------------|--|---------------------------|
| Area of a polygon | The area of a polygon is the number of square units inside that polygon. [8] | ka-tipastawa pihcāyihk |
|--------------------------|--|---------------------------|

| | | |
|-------------------|---|---------------------|
| Arithmetic | The branch of mathematics is usually concerned with the four operations (addition, subtraction, multiplication and division) of positive numbers. [8] | akihtāsowēpinikēwin |
|-------------------|---|---------------------|

| | | |
|---|--|-----------------------------------|
| Arithmetic expression | An algebraic expression is a mathematical expression that consists of numbers and arithmetic operators (such as +, -, ×, ÷, roots, exponents, parentheses). | akihtāsowēpinikēwina |
| $5+7 \sqrt{(-2-7)^3+5 \times 3 \div 2-\sqrt{5}}\{81\}$ | | |
| Arithmetic mean | The arithmetic mean (or simply the mean) of a list of numbers is the sum of all of the list divided by the number of items in the list. [8] | akihtāsowēpinikēwin tastawāyak |
| Arithmetic mean of $3, 7, 32 = \frac{3+7+32}{3} = 14$ | | |
| Arithmetic operations | The four basic arithmetic operations are addition, subtraction, multiplication and division. [8] | akihtāsowēpinikēwin itihwina |
| Associative property | Property of addition and multiplication that allows the numbers being added or multiplied to be regrouped without changing the outcome of the operations. [3] | akihtāsowēpinikēwin itwīwina |
| $(3 \times 2) \times 5 = 3 \times (2 \times 5)$ $(1 + 4) + 2 = 1 + (4 + 2)$ | | |
| Average | The number obtained by dividing the sum of a set of numbers by the number of addends. [8] | tastawāyak |
| Average of $3, 7, 32 = \frac{3+7+32}{3} = 14$ | | |
| Axes | Axes are the horizontal number line (x-axis) and the vertical number line (y-axis) on the coordinate plane. Axes are also the lines at the side and bottom of a graph. [8] | akask |

B



| | | |
|---|---------------------------------------|-------------|
| Backward | Directed toward the back or past. [6] | asi-akiciki |
|  | | |

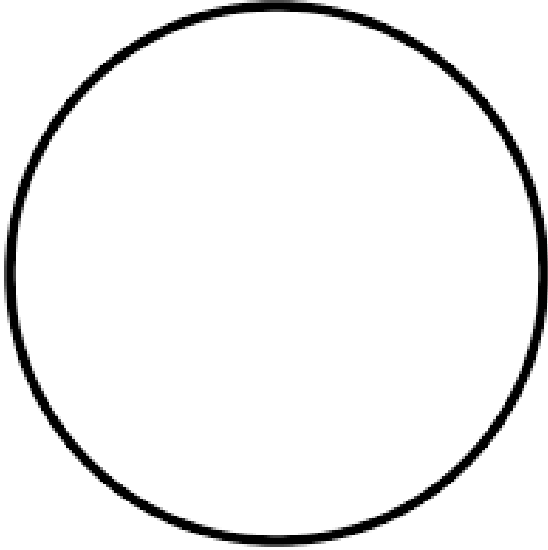
| | | |
|--------------------|----------------------------------|----------|
| Before | In front of or earlier than. [4] | pâmwayês |
| 2 is just before 3 | | |

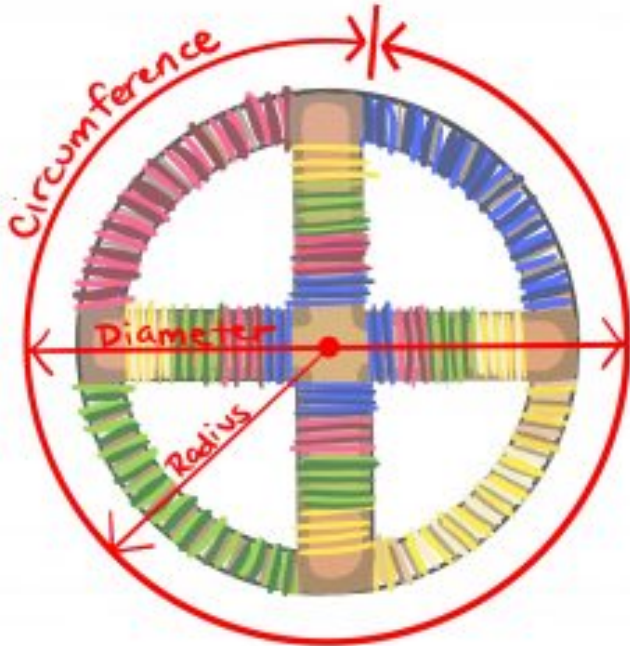
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|---|--|---------------|
| Brackets | Signs, “[” and “]”, or “(” and “)” used to indicate that the operation(s) on the quantities enclosed should be worked out first or should be treated as a unit. Brackets are normally used after parentheses are used. [4] | sîtwahpicikew |
| $\begin{aligned} &2 \times [(6 - 4) \times 3 + 1] - 1 \\ &= 2 \times [2 \times 3 + 1] - 1 \\ &= 2 \times [6 + 1] - 1 \\ &= 2 \times 7 - 1 = 13 \end{aligned}$ | | |

C



| | | |
|---|--|------------|
| Cent | A unit of money in many countries such as the United States, Canada, Australia, and New Zealand. [4] | pîwâpiskos |
|  | | |

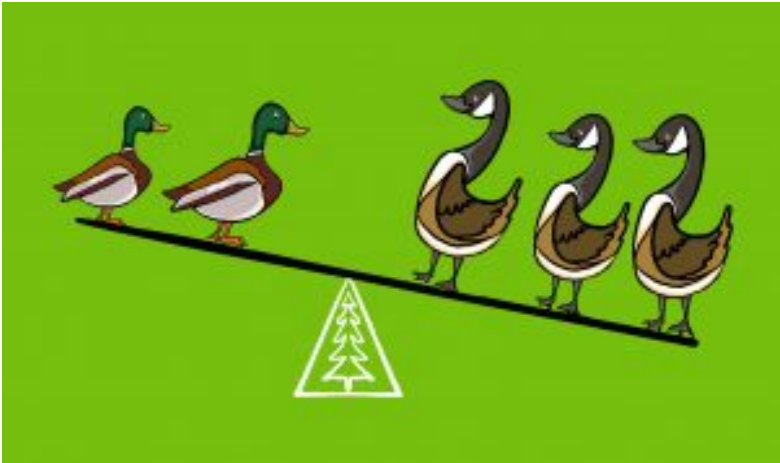
| | | |
|--|--|-----------|
| Circle | A closed, perfectly round curve consisting of all the points that are equidistant from a fixed point inside the curve called the center. [4] | wâwiyiyaw |
|  | | |


| | | |
|--|--|---------|
| Circumference | The perimeter (length) of a circle, determined as $C = 2\pi r$, where $\pi \approx 3.14$ and r is the radius of the circle. | wâsakâm |
|  | | |

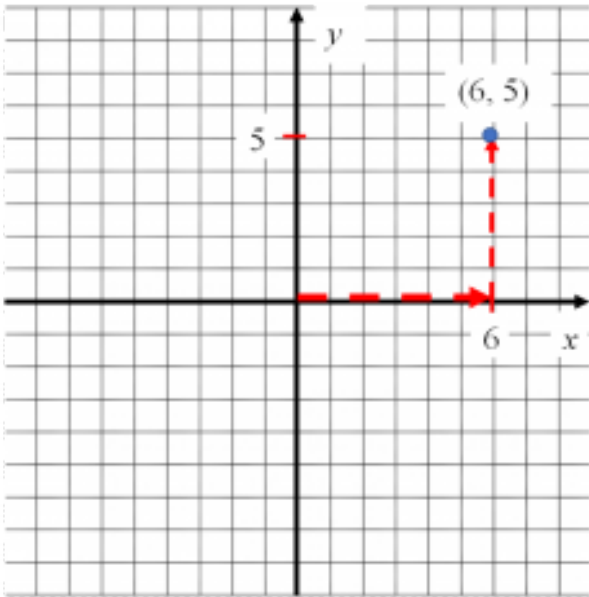
| | | |
|--|--|---------------------|
| Coefficient | A constant that multiplies a variable. [1] | akihtàsona kâpatahk |
| <p>in $3x + 4y = 14$ 3 is the coefficient of x, 4 is the coefficient of y</p> | | |

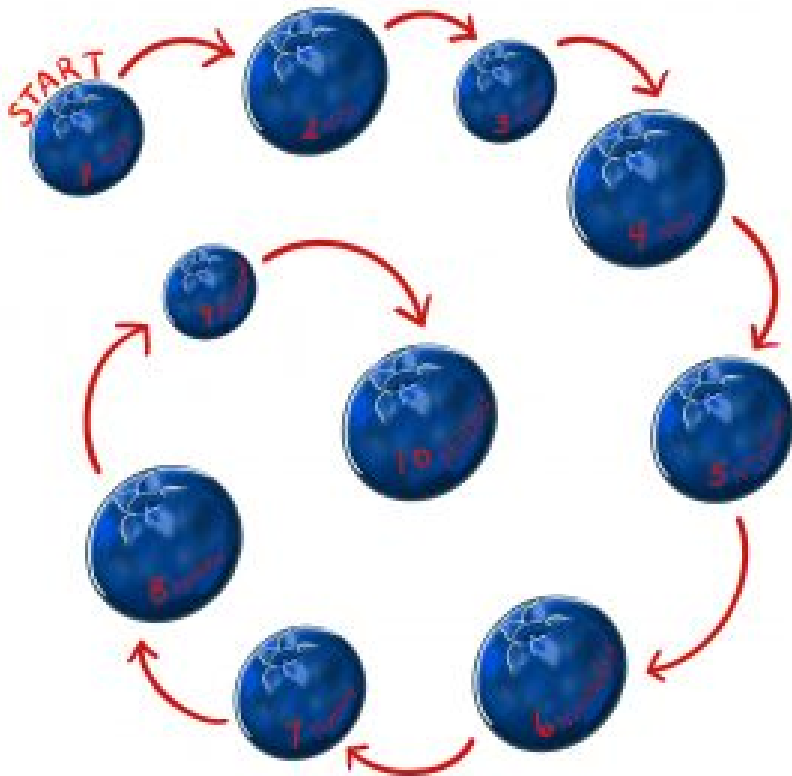
| | | |
|--|------------------|---------|
| Coin | Metal money. [5] | sônîyâs |
|  <p style="text-align: center; color: red; font-size: 2em;">Coins</p> | | |

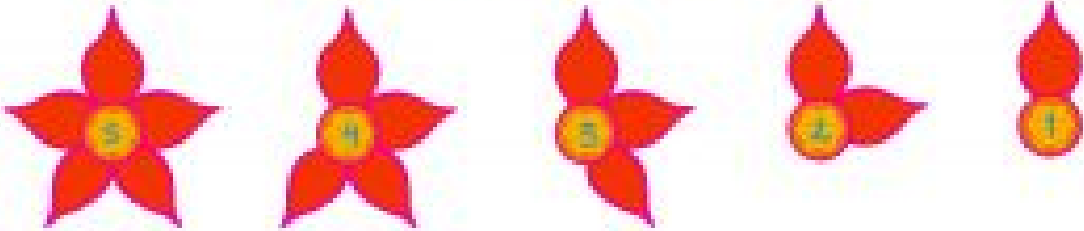
| | | |
|---|--|---|
| Commutative | Property of addition and multiplication that allows the numbers to be added or multiplied in any order, without affecting the sum or product of the operation. [3] | (1) papiyakwan ithikohk (Woodland) (2) pahpeyakwan iyikohk (Plain) |
| <p style="text-align: center;">$6 + 12 = 12 + 6$ $3 \times 5 = 5 \times 3$</p> | | |


| | | |
|--|--|-----------------------------------|
| Compare | To state the similarities or differences between two or more numbers, objects, or figures by considering their attributes/characteristics. [1] | peyakwan ahpo pitos akihtàsona |
|  <p>2 is less than 3 or 3 is more than 2</p> | | |

| | | |
|---|---|---------------------|
| Comparison | Examination (two or more objects, ideas, people, etc.) in order to note similarities and differences. [6] | nânâkatawêyitamôwin |
|  | | |

| | | |
|--|---|--------------------------|
| Coordinate | Ordered pair used to describe a location on a grid or plane. For example, the coordinates (6, 5) describe a location found by moving 6 units to the right and 5 units up from the origin. | ita kanakiskātomakaki |
|  | | |

| | | |
|--|--|--------|
| Count | <ol style="list-style-type: none"> 1. To name the numbers in order up to and including a given number. 2. To determine the total number or amount. [1] | akihta |
|  | | |

| | | |
|---|--|---------|
| Count backward | To list or name numerals in reverse order. [6] | asêkikê |
| <p style="text-align: center;">Counting Backwards</p>  | | |

| | | |
|--|--|----------|
| Count forward | To list or name numerals in order. [6] | akihcikê |
| <p style="text-align: center;">Counting Forward</p>  | | |

D

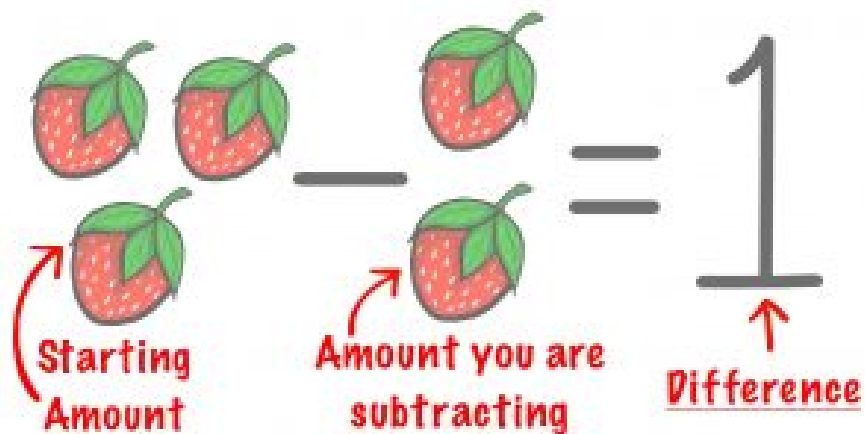


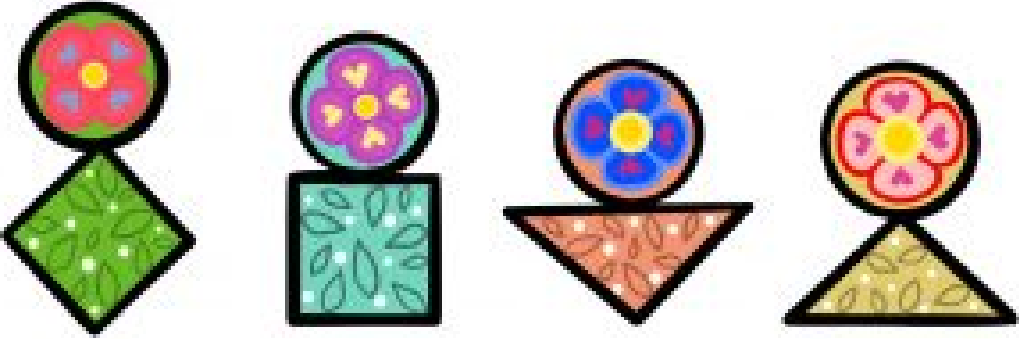
| | | |
|---|--|----------------------------------|
| Data | Information that is collected first or second hand. Data are usually numerical, organized in charts and displayed by graphs. [1] | (1) nōkanwa (2) akihtāsōwinah |
| Percentage of Cree speakers in Canadian Provinces [9] | | |
| Provinces | Concentrations | |
| Saskatchewan | 27.8% | |
| Alberta | 24.0% | |
| Manitoba | 21.6% | |
| Quebec | 18.0% | |

| | | |
|--------------------|--|----------------|
| Denominator | The number below the line in a fraction that can state one of the following: the number of elements in a set or the number of equal parts into which the whole is divided. [1] | nichi akhtāson |
|--------------------|--|----------------|




| | | |
|-------------------|---|-------------|
| Difference | The amount remaining after one quantity is subtracted from another. [1] | iskonikīwin |
|-------------------|---|-------------|



| | | |
|--|--|-------|
| Different | Not alike in character or quality; distinct in nature; dissimilar. [6] | pîtos |
|  | | |

| | | |
|---|---|-----------------|
| Digit | Any one of the ten numerals: 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9. [1] | peyak akihtâson |
| digits “3”, “0” and “5” form the number “305” | | |

| | | |
|--|--|-------------|
| Dime | A small coin that is worth 10 cents. There are 10 dimes in a dollar. [4] | mitahsonias |
|  <p>Dime</p> | | |

| | | |
|--------------------------------------|---|--|
| Distributive | A property of real numbers that states that the product of the sum or difference of two numbers is the same as the sum or difference of their products. [1] | (1) pēyakwan ayitaw (2) ispîhtawa-kēyhtakwanwah |
| $3(5 + 7) = 3 \times 5 + 3 \times 7$ | | |

| | | |
|-----------------|--|-------------------|
| Division | A mathematical operation involving two numbers that tells how many groups there are or how many are in each group. [1] | pahpiskihc âyâwin |
| $18 \div 9 = 2$ | | |

| | | |
|---|---|-------------|
| Dollar | The main unit of money in many countries such as United States, Canada, Australia, and New Zealand. [4] | pëyakwâpisk |
|  | | |

| | | |
|---------------|--|-------------|
| Domain | The set of all possible input values for a function or relation. [4] | itakisowina |
|---------------|--|-------------|

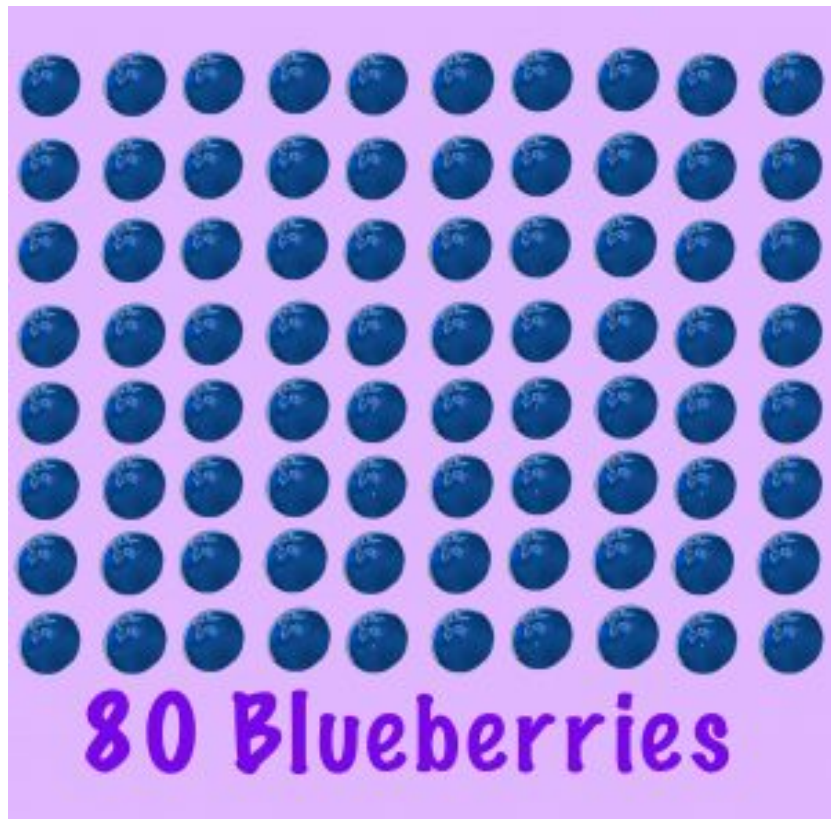
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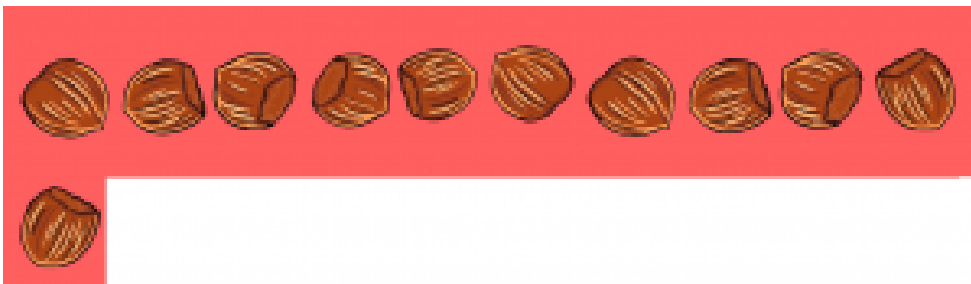
| | | |
|---|---|----------|
| Eight | 8 | ayênânêw |
| An illustration of eight cattails growing from a green oval base. The cattails have long green leaves and brown, textured heads. The text "8 Cattails" is written in green at the bottom of the illustration. | | |


| | | |
|--------|-----|----------------|
| Eighth | 8th | mweci-ayinânêw |
|--------|-----|----------------|

| | | |
|--------|----|------------------|
| Eighty | 80 | ayinânêwomitanaw |
|--------|----|------------------|

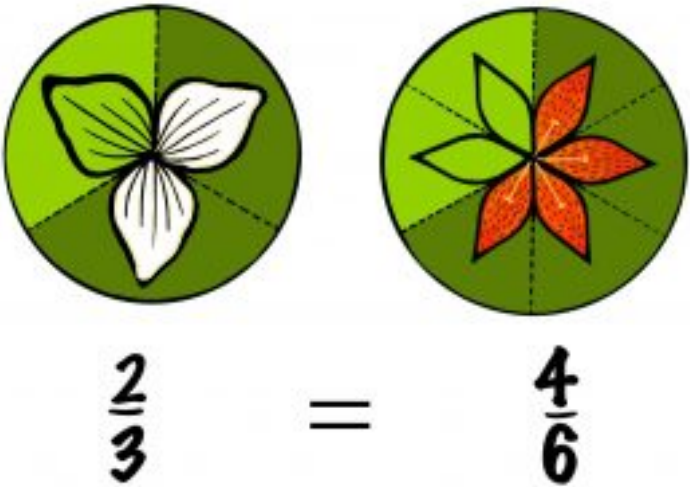


| | | |
|--------|----|-----------|
| Eleven | 11 | pêyakosâp |
|--------|----|-----------|



| | | |
|--|---|----------------------------|
| Equal | The same in size, value, or amount. [4] | (1) tipi (2) pâpeyakwan |
|  <p>Equal amount</p> | | |

| | | |
|----------------------------|---|-----------------------|
| Equation | A mathematical sentence stating that two expressions are equal. [1] | pêyakwan akihtêwah |
| $x + 2 = 72$ $y - 3x = 12$ | | |

| | | |
|--|---------------------|-------------------------|
| Equivalent | Equal in value. [1] | pah pêyakwan iyikohk |
|  $\frac{2}{3} = \frac{4}{6}$ | | |

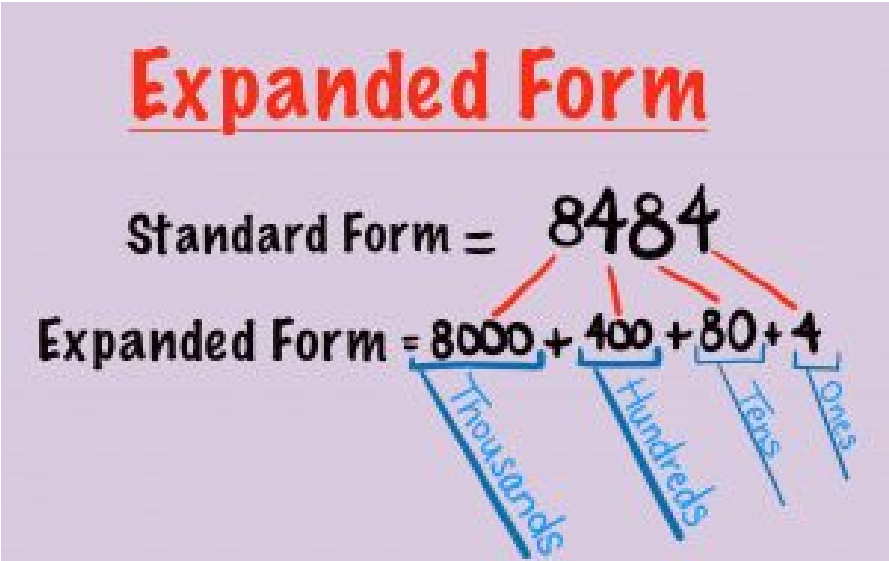
| | | |
|-----------------|---|--------------|
| Estimate | An answer that is an approximation. [1] | eyoko nantow |
|-----------------|---|--------------|

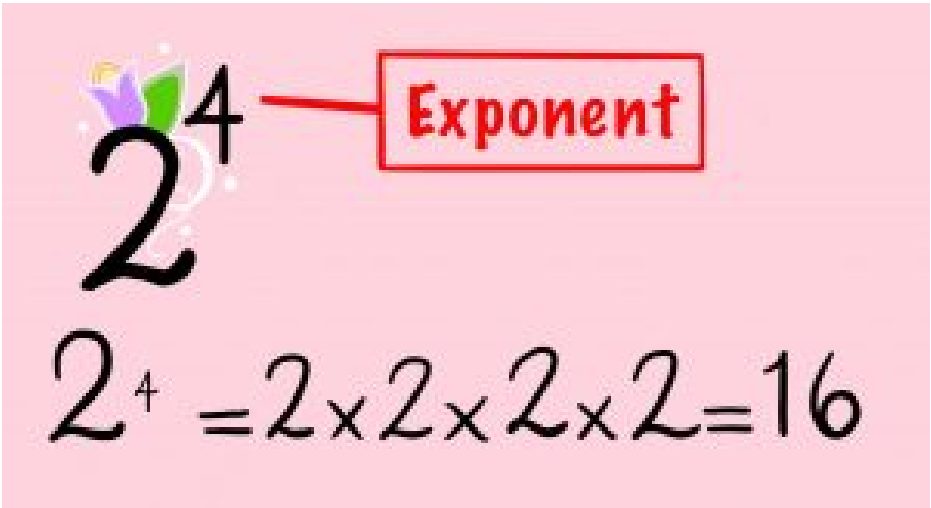
| | | |
|-----------------|---|-------------------------|
| Evaluate | To find the value of a mathematical expression. [1] | kikway koyakihtamihk |
|-----------------|---|-------------------------|

| |
|---|
| $3(5 + 4) - 7 = 3 \times 9 - 7 = 27 - 7 = 20$ |
|---|

| | | |
|---------------------|--|-----------------|
| Even numbers | A whole number that is divisible by 2. [1] | nani-akihtāsona |
|---------------------|--|-----------------|



| | | |
|---|--|------------|
| Expanded form | A way of writing numbers that shows the value of each digit. [3] | taswikasta |
|  <p>Expanded Form</p> <p>Standard Form = 8484</p> <p>Expanded Form = 8000 + 400 + 80 + 4</p> <p>Thousands Hundreds Tens Ones</p> | | |

| | | |
|--|---|----------------------------|
| Exponent | A number placed to the top right of another number (base) to indicate the number of times the base is multiplied by itself. [1] | akihtāson kākitwam mena |
|  <p>Exponent</p> <p>$2^4 = 2 \times 2 \times 2 \times 2 = 16$</p> | | |


| | | |
|---------------------------------------|--|---------------|
| Expression (mathematical) | A numeric or algebraic representation of a quantity. An expression may include numbers, variables, and operations. [3] | kwayaskowewin |
| $12 - 5 \times 2$ $3x - 7$ $x^3 - 2y$ | | |

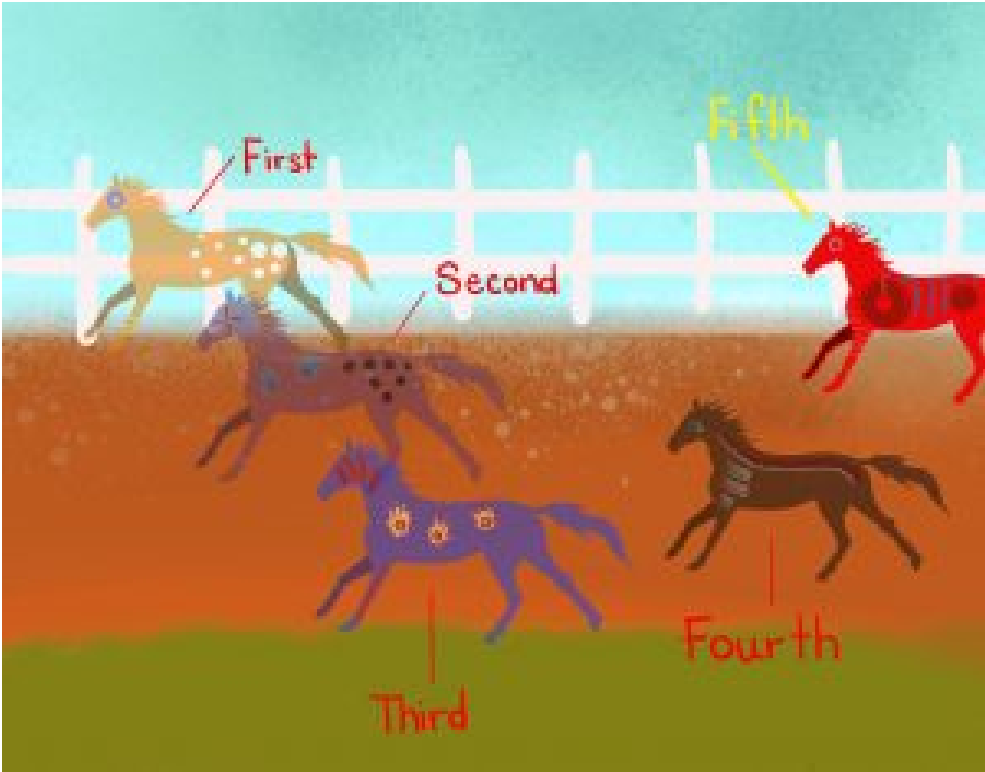
F




| | | |
|---|--|------------------|
| Factor | Factors are numbers we can multiply together to get another number | piskic akitāsona |
| 4×5=20; 4 and 5 are factors of 20 2×3×7=42; 2, 3 and 7 are factors of 42 | | |


| | | |
|--|---|----------------|
| Factoring | A number or expression that is multiplied by another to yield a product (e.g., a factor of 24 is 8 because 8 × 3 = 24, and a factor of 3n is n because 3 · n = 3n). [1] | pa piskicipita |
| $5x - 20 = 5(x - 4)$ $24 = 4 \times 6$ $36 = 2 \times 2 \times 3 \times 3$ | | |

| | | |
|--|----|-------------|
| Fifteen | 15 | neyānanosâp |
|  | | |


| | | |
|--|---|--------------|
| Fifth | Constituting number five in a sequence. | mweciniyānan |
|  <p>An illustration showing five horses running across a field. The horses are labeled in a sequence: 'First' (a yellow horse with white spots), 'Second' (a dark blue horse with white spots), 'Third' (a light blue horse with yellow spots), 'Fourth' (a dark brown horse), and 'Fifth' (a red horse). The labels are written in red or yellow text with lines pointing to the respective horses. The background features a white fence and a blue sky.</p> | | |


| | | |
|---|----|-----------------|
| Fifty | 50 | niyānanomitanaw |
|  <p>An illustration showing 50 hazelnuts arranged in five rows of ten. The hazelnuts are brown and textured. Below the arrangement, the text '50 Hazelnuts' is written in a bold, black, sans-serif font.</p> | | |

| | | |
|--------------|--|----------------|
| First | Before anything else, constituting number one in a sequence. | mwecipecyakwāw |
|--------------|--|----------------|


| | | |
|--|---|---------|
| Five | 5 | nîyânan |
|  | | |

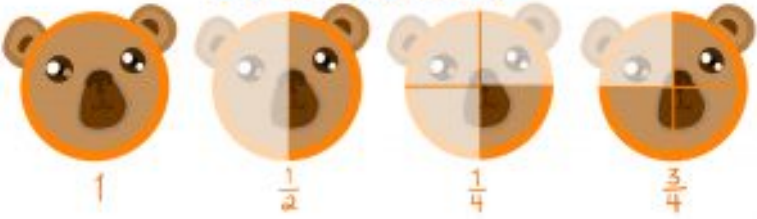
| | | |
|---|--|---------------|
| Form | The manner or style of arranging and coordinating parts. [6] | kayisenakwahk |
| <p>standard form: $3x + 2y = 7$</p> <p>exponential form: $3 \times 3 \times 3 \times 3 \times 3 = 3^5$</p> <p>expanded form: $537 = 5 \times 100 + 3 \times 10 + 7 \times 1$</p> | | |

| | | |
|--|----|-------------|
| Forty | 40 | nêwomitanaw |
|  | | |

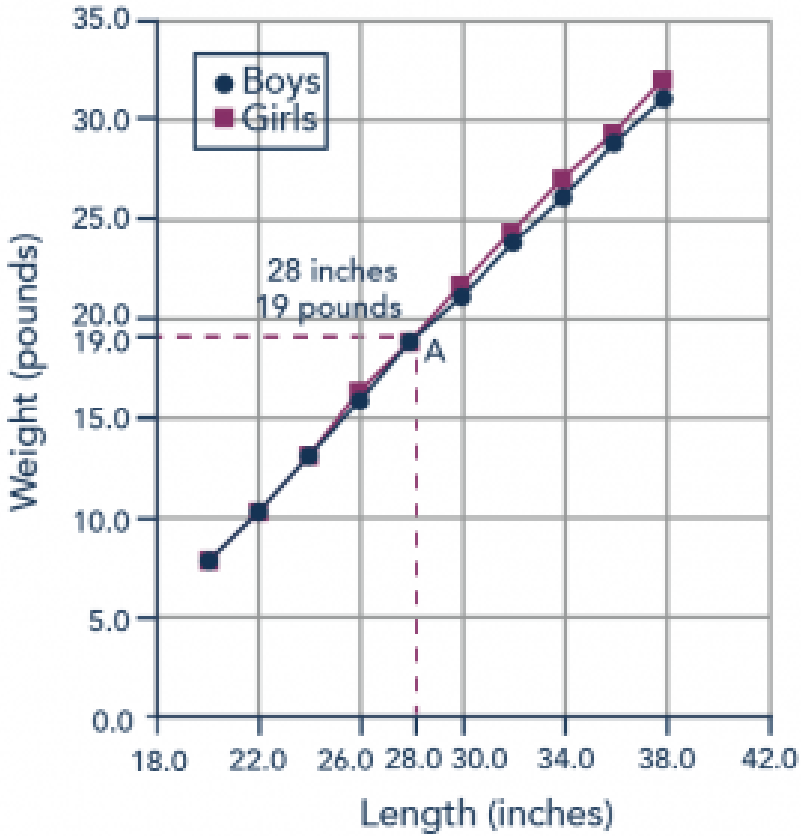
| | | |
|--|---|------|
| Four | 4 | nêwo |
|  | | |

| | | |
|--------|---|---------------|
| Fourth | Constituting number four in a sequence. | mwecineuiyihk |
|--------|---|---------------|

| | | |
|--|----|---------|
| Fourteen | 14 | nêwosâp |
|  | | |

| | | |
|---|----------------------------------|-----------------|
| Fraction | A ratio of numbers or variables. | pahki akihtäson |
| <div style="text-align: center;"> <h2 style="color: blue;">Fractions</h2>  <p style="margin-top: 10px;"> $\frac{x}{2y}, \frac{2x - 1}{3x^2 + 7}$ </p> </div> | | |



| Graph | A visual representation of data. [3] | isinakwak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------------------|-----------------------|-----------------|----------------------|-----------------------|------|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <div><p>The graph displays two data series: Boys (represented by blue circles) and Girls (represented by red squares). Both series show a positive linear relationship between Length (inches) on the x-axis and Weight (pounds) on the y-axis. The x-axis ranges from 18.0 to 42.0 inches, and the y-axis ranges from 0.0 to 35.0 pounds. A specific point A is highlighted on the Boys' line at a length of 28 inches and a weight of 19 pounds, with dashed lines indicating these values on the axes.</p><table border="1"><thead><tr><th>Length (inches)</th><th>Boys Weight (pounds)</th><th>Girls Weight (pounds)</th></tr></thead><tbody><tr><td>20.0</td><td>8.0</td><td>8.0</td></tr><tr><td>22.0</td><td>10.5</td><td>10.5</td></tr><tr><td>24.0</td><td>13.0</td><td>13.0</td></tr><tr><td>26.0</td><td>16.0</td><td>16.5</td></tr><tr><td>28.0</td><td>19.0</td><td>19.0</td></tr><tr><td>30.0</td><td>21.0</td><td>21.5</td></tr><tr><td>32.0</td><td>24.0</td><td>24.0</td></tr><tr><td>34.0</td><td>26.0</td><td>27.0</td></tr><tr><td>36.0</td><td>29.0</td><td>29.5</td></tr><tr><td>38.0</td><td>31.0</td><td>32.0</td></tr></tbody></table></div> <p>[11]</p> | | | Length (inches) | Boys Weight (pounds) | Girls Weight (pounds) | 20.0 | 8.0 | 8.0 | 22.0 | 10.5 | 10.5 | 24.0 | 13.0 | 13.0 | 26.0 | 16.0 | 16.5 | 28.0 | 19.0 | 19.0 | 30.0 | 21.0 | 21.5 | 32.0 | 24.0 | 24.0 | 34.0 | 26.0 | 27.0 | 36.0 | 29.0 | 29.5 | 38.0 | 31.0 | 32.0 |
| Length (inches) | Boys Weight (pounds) | Girls Weight (pounds) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20.0 | 8.0 | 8.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22.0 | 10.5 | 10.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24.0 | 13.0 | 13.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26.0 | 16.0 | 16.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28.0 | 19.0 | 19.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30.0 | 21.0 | 21.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32.0 | 24.0 | 24.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34.0 | 26.0 | 27.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36.0 | 29.0 | 29.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38.0 | 31.0 | 32.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |


| | | |
|-------|--|-----------------|
| Group | Any collection or assemblage of persons or things. [6] | ka âmawiyaktihk |
|-------|--|-----------------|

H



| | | |
|-------------------|---|------------|
| Horizontal | A line extending left and right without extending up and down; a line parallel to the horizon. [1] | kispaskihk |
|-------------------|---|------------|




| | | |
|--|-----|------------------|
| Hundred | 100 | mitâtahtomitanaw |
|  | | |



| | | |
|---|---|-----------------|
| Inequality | A mathematical statement indicating that two quantities (or expressions) are not in balance. [1] | patos akītewa |
| $12 > 3$ $x < 4$ $7 \neq 5$ | | |
| Input | Contribution of information, ideas, opinions, or the like. [6] | ascikiy |
| Integer | The set of numbers consisting of the whole numbers (e.g., 1, 2, 3, 4, . . .), their opposites (e.g., -1, -2, -3, -4, . . .), and 0. [1] | kīci-akīta sona |
| -17, 5, 0, 120 | | |
| Inverse | An element of a set that gives the identity element when combined with another given element. [4] | kwēski akītason |
| <p>-5 is the inverse of 5 with respect to addition</p> <p>$\frac{1}{5}$ is the inverse of 5 with respect to multiplication</p> | | |

L



| | | |
|--|--|----------------|
| Less | A smaller amount; The symbol "<" means "less than" | astamik |
| $2 < 7$ $x < 11$ | | |
| Like | Of the same form, appearance, kind, character, amount. [6] | mwecipecyokwan |
| Line | An infinite set of points in opposite directions forming a straight path; it has only one dimension, length. [1] | tipâpâniyâpiy |
|  | | |

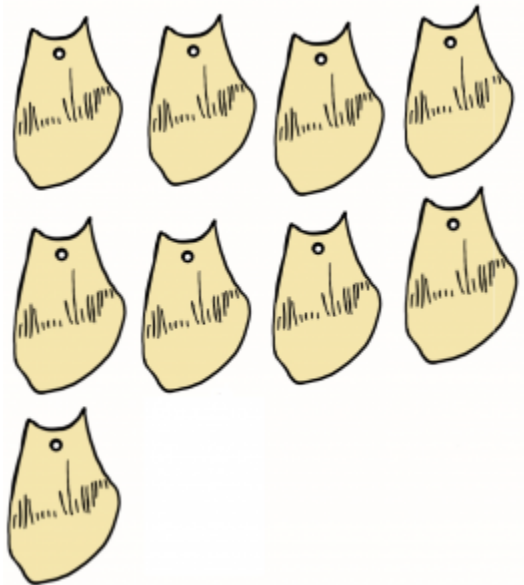
M

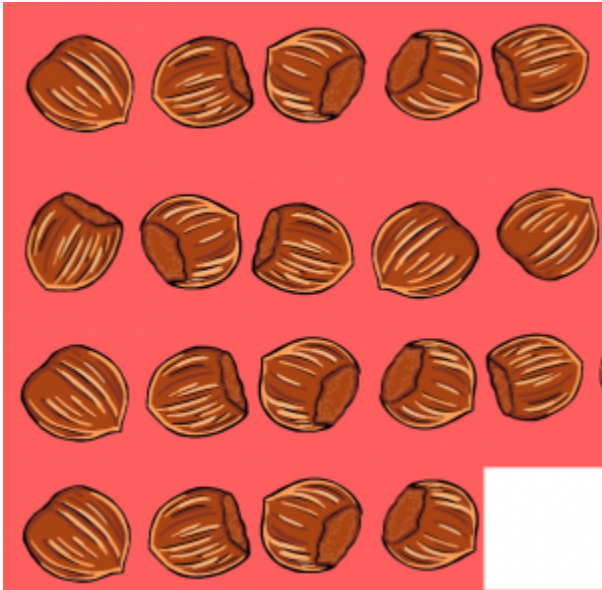


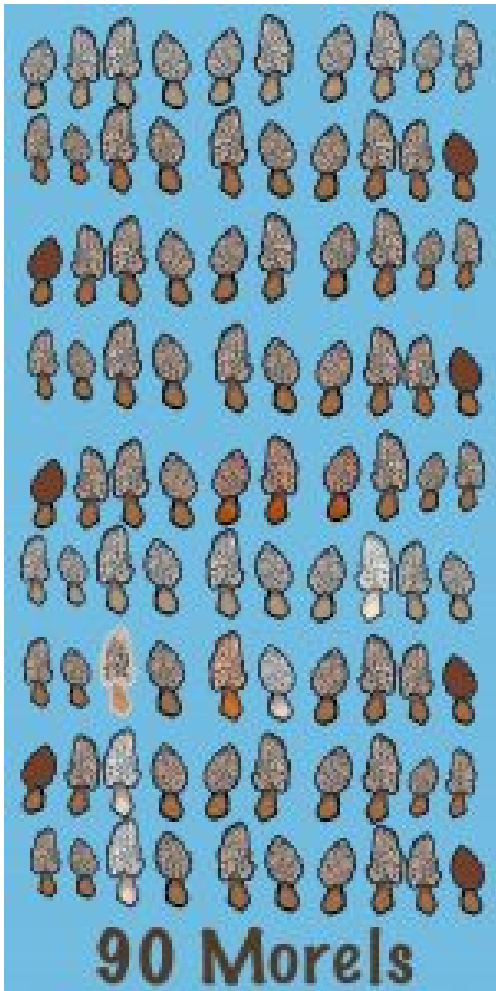
| | | |
|--------------------|---|-----------------------|
| Match | A person or thing that is an exact counterpart of another. [6] | tīpitin |
| Minus | Refers to subtraction or the symbol of subtraction. [1] | pahki otinamakewin |
| Money | Coins and paper bills used for buying and selling. [5] | sōniyâw |
| More | Greater in number, size, or extent. [4] | ayiwâk |
| Multiple | The product of a given whole number and any other whole number. [1] 18 is a multiple of 6 (since $6 \times 3 = 18$). 18 is a multiple of 18 (since $18 \times 1 = 18$). 18 is NOT a multiple of 8. | piskic akihtâsona |
| Multiplication | A mathematical operation of combining groups of equal amounts; repeated addition; the inverse of division. [1] | mihcetowakihcikewi |
| $12 \times 3 = 36$ | | |

N

N

| | | |
|---|---|--------------|
| Nine | 9 | kîkâmitâtaht |
|  | | |

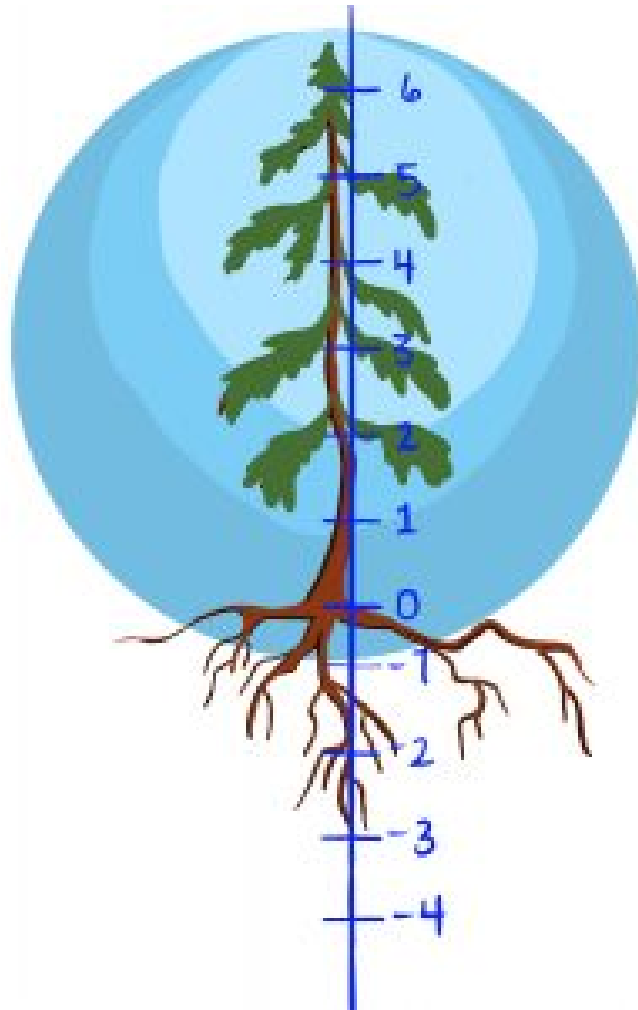
| | | |
|--|----|------------------|
| Nineteen | 19 | kîkâmitâtahtosâp |
|  | | |

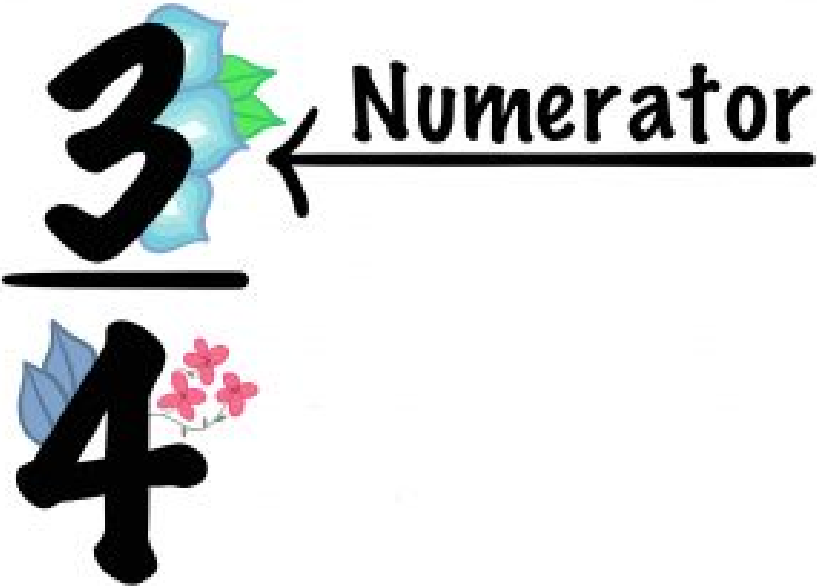
| | | |
|---|----|----------------------|
| Ninety | 90 | kîkâmitâtahtomitanaw |
|  | | |

| | | |
|--------------|-----|-------------------|
| Ninth | 9th | mwecikikâmitâtaht |
|--------------|-----|-------------------|

| | | |
|---------------|--|-----------|
| Number | The concept of an amount, quantity, or how many items there are in a collection. [1] | akihtâson |
|---------------|--|-----------|

| | | |
|--------------------|--|----------------------------|
| Number line | A line (vertical or horizontal) on which each point represents a number. [1] | akihtâson tipapekinikan |
|--------------------|--|----------------------------|



| | | |
|--|---|-----------------|
| Numerator | The number above the line in a fraction that can state one of the following: the number of elements taken from a set or from equal parts. | tahkoc akitason |
|  | | |

| | | |
|------------------|---|--------------|
| Numerical | Involving numbers or a number system. [1] | akihtāsowina |
|------------------|---|--------------|

| | | |
|---|--|--------------------|
| Numerical expression | Any combination of numerals and/or operation symbols. Also, known as an <i>arithmetic expression</i> . [1] | akihtāsona-itēwina |
| $35 \sqrt{4.5 - 1.2 \sqrt{5 \times 4 - 4}}$ | | |

| | | |
|--|--|-------------------------|
| Numerical pattern | A sequence of numbers following a certain rule | akihtāso kaskomakāki |
| <p>1, 5, 9, 13, ... (arithmetic progression) 2, 6, 18, 54, ... (geometric progression) 0, 1, 1, 2, 3, 5, 8, 13, ... (Fibonacci Sequence)</p> | | |

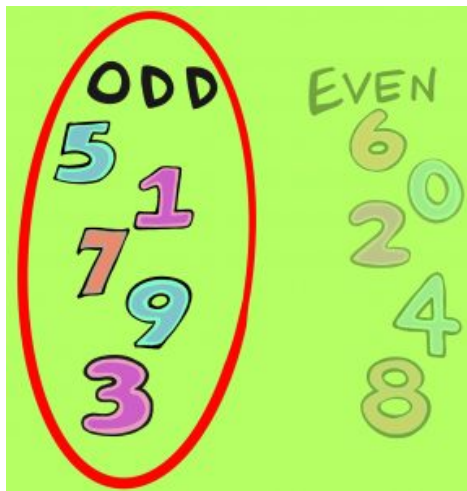
O



| | | |
|---------------|---|--------------|
| Object | A thing, person, or matter to which thought or action is directed [6] | pimâmeyihtam |
|---------------|---|--------------|

| | | |
|------------|--|---------------|
| Odd | | mitoni pahtos |
|------------|--|---------------|

| | | |
|--------------------|--|------------|
| Odd numbers | A number that is not divisible by 2. [1] | ayacināwan |
|--------------------|--|------------|




| | | |
|------------|---|-------|
| One | 1 | piyak |
|------------|---|-------|

| | | |
|-------------|--|----------|
| Ones | The place value located one place to the left of the decimal point in a number; shows how many ones are in a number. [1] | papiyako |
|-------------|--|----------|

| | | |
|---|--|--------------------------|
| Operation (mathematical) | Procedures used to combine numbers, expressions, or polynomials into a single result (e.g., addition, subtraction, multiplication, division, exponents). [1] | oyêyhtamô akihtâsôwin |
| <div style="text-align: center;"> $+$ $-$ \times \div </div> | | |

| | | |
|-----------------|---|---------------|
| Opposite | Two things that are located or facing directly across. Two opposite numbers are the two numbers that are equidistant from the origin on a number line but in opposite directions from the origin. [4] | kwiskitakitew |
|-----------------|---|---------------|

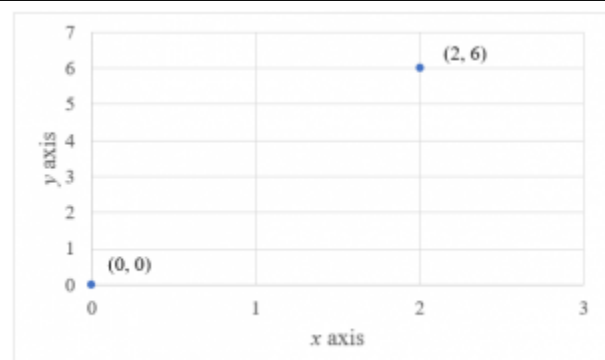
| | | |
|--------------|--|-------------------|
| Order | To place numbers or objects in a sequential arrangement (e.g., least to greatest or heaviest to lightest). [1] | îyaskohtascikêwin |
|--------------|--|-------------------|



| | | |
|----------------------------|---|--------------------------|
| Order of operations | <p>A specified sequence in which mathematical operations are expected to be performed. An arithmetic expression is evaluated by following these ordered steps:</p> <ol style="list-style-type: none"> 1. Simplify within grouping symbols such as parentheses or brackets, starting with the innermost. 2. Apply exponents—powers and roots. 3. Perform all multiplications and divisions in order from left to right. 4. Perform all additions and subtractions in order from left to right. <p>A common way to remember this is to use the acronym BEDMAS: Brackets, Exponents, Division, Multiplication, Addition, Subtraction. Division and multiplication (and addition and subtraction) are to be completed in the order in which they appear from left to right in the expression or equation. [1]</p> | oyastewaw akicikiwina |
|----------------------------|---|--------------------------|

$$\begin{aligned}
 &5 - (2 + 11) \times 3 + 5^2 \div 4 \\
 &= 5 - 13 \times 3 + 25 \div 4 \\
 &= 5 - 39 + 6.25 \\
 &= -34 + 6.25 \\
 &= -27.75
 \end{aligned}$$

| | | |
|----------------------|---|-----------|
| Ordered pairs | Two numbers, in order, that are used to describe the location of a point on a plane, relative to a point of origin (0,0); for example, (2, 6). On a coordinate plane, the first number is the horizontal coordinate of a point, and the second is the vertical coordinate of the point. [3] | nāh-nāway |
|----------------------|---|-----------|




| | | |
|---------------|---|---------|
| Output | The material produced or yield; product [6] | ispayow |
|---------------|---|---------|

| | | |
|----------------|---------------------------------------|--------------|
| Outside | Beyond the boundary of or limits. [5] | wayawitimihk |
|----------------|---------------------------------------|--------------|



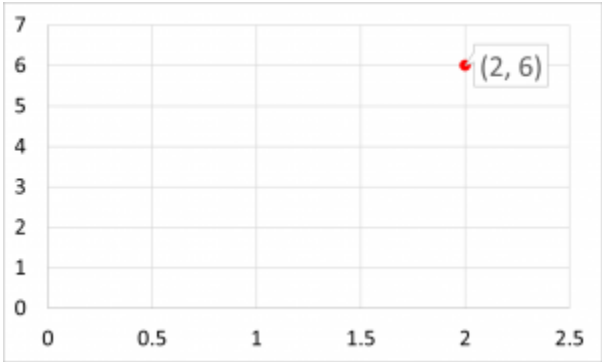
P



| | | |
|---|---|--------------|
| Pair | Two identical, similar, or corresponding things that are matched for use together [6] | nisotomākana |
|  | | |

| | | |
|--|---|----------------------|
| Parentheses | A pair of signs, “(” and “)”, is used to indicate that the operation(s) on the quantities enclosed should be carried out first. [4] | wawi cakpaykanahk |
| $3 \times (5 - 2) + 1 = 3 \times 3 + 1 = 9 + 1 = 10$ | | |

| | | |
|--|---|--------------------------------|
| Pattern | A design (geometric) or sequence (numerical or algebraic) that is predictable because some aspect of it repeats [1] | masinisâwân isi-askotomakak |
| <p>Algebraic sequence: 3, 7, 11, 15, 19,...</p> <p>Geometric sequence: 2, 6, 18, 54, 162,...</p> <p>Fibonacci sequence: 0, 1, 1, 2, 3, 5,...</p> | | |

| | | |
|--|--|------------------|
| Penny | The coin that represents the smallest unit of money in the United States and Canada, which is equal to 1 cent. [4] | piyak-pîwâpiskos |
|  | | |
| Plane | A set of points forming a flat surface that extends without end in all directions [1] | môhkocikêwâkan |
|  | | |
| Point (on a graph) | | cacipiyikan |
|  | | |
| Product (mathematical) | The number obtained when two or more factors are multiplied. [1] | māmwi-akîtâk |
| <p>in $1.2 \times 3 = 3.6$, 3.6 is the product</p> | | |

Q



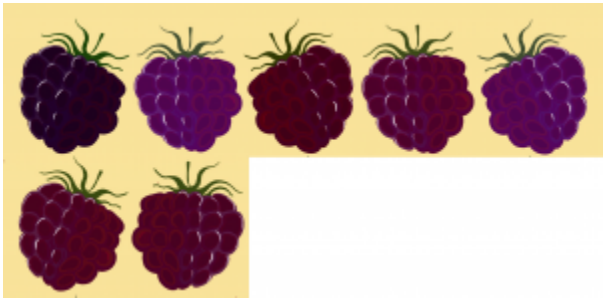
| | | |
|---|--|---------------|
| Quantity | An amount [5] | itahto |
| Quarter (one-fourth of a number) | One of the four equal or equivalent part [6] | peyak sônîyas |

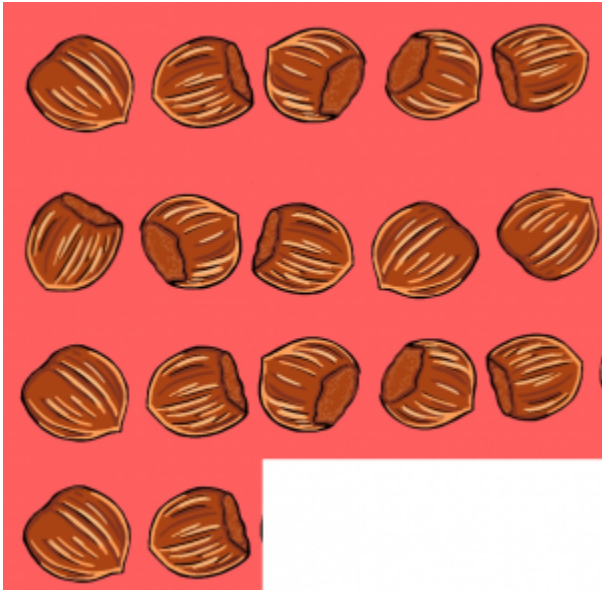
R



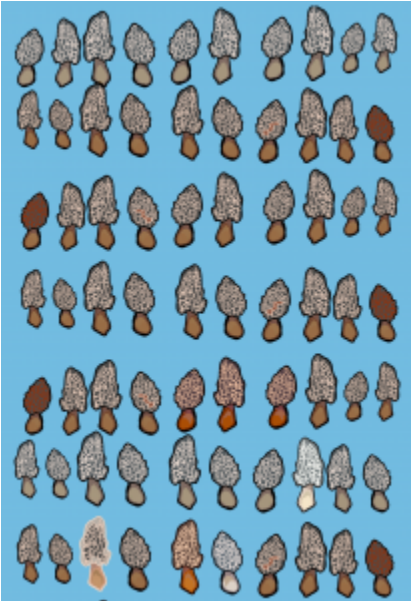
| | | |
|--|--|---------------------------|
| Range | The set of all possible values for the output of the function. [4] | êh isi tahtipêwakintek |
| Relationship (between quantities) | A connection or association [6] | êhwîciyawê-kihtêk |
| Rule (mathematical) | A principle or regulation governing conduct, action, procedure [6] | wiyasiwêwin |




| | | |
|--|---|----------|
| Second | 2nd | nîswâw |
| Sequence | A pattern of numbers that are connected by some rule. [3] | iyaskohc |
| 1, 1, 2, 3, 5, 8, 13, ... (Fibonacci Sequence) | | |
| Seven | 7 | tepakohp |
|  | | |


| | | |
|--|----|--------------|
| Seventeen | 17 | têpakohposâp |
|  | | |


| | | |
|---------|-----|---------------|
| Seventh | 7th | mwecitepakohp |
|---------|-----|---------------|

| | | |
|---|----|------------------|
| Seventy | 70 | tepakohpimitanaw |
|  | | |

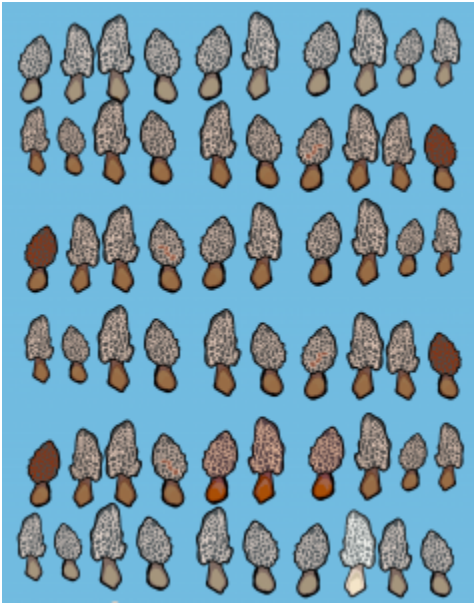
| | | |
|--|--|----------------|
| Similar | Having the same shape but not always the same size. If one shape is similar to another shape, there exists a dilatation that will transform the first shape into the second shape. [3] | peyakwan kekâc |
|  | | |

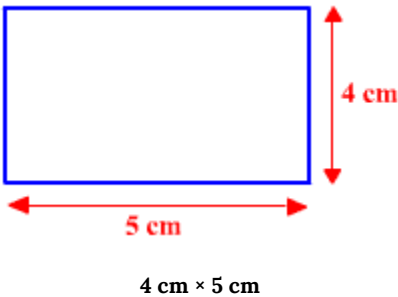
| | | |
|-------------------|--|----------|
| Similarity | Denoting two or more figures that have the same shape but different sizes. [4] | tâpiskôc |
|-------------------|--|----------|

| | | |
|--|---|------------|
| Six | 6 | nikotwâsik |
|  | | |

| | | |
|--|----|--------------|
| Sixteen | 16 | nikotwâsosâp |
|  | | |

| | | |
|--------------|-----|-----------------|
| Sixth | 6th | mwecinikotwâsik |
|--------------|-----|-----------------|

| | | |
|--|----|------------------|
| Sixty | 60 | nikotwâsomitanaw |
|  | | |


| | | |
|---|--|---------------------------|
| Size | The spatial dimensions, proportions, magnitude, or bulk of anything. [6] | tānimayikohk kîspehcak |
|  | | |

| | | |
|---|---------------------------------|--------------------------|
| Skip (counting) | To count by a given number. [1] | ansko kwâskohtâkiciki |
| skip count by 2s: 2, 4, 6, 8, 10, . . . | | |

| | | |
|------------------------|--|-------------------|
| Small (numbers) | Of low numerical value; denoted by a low number. [6] | apisci-akihtâsona |
|------------------------|--|-------------------|

| | | |
|-----------------|--|---------------|
| Solution | The value or values that make an equation or open sentence true. [1] | miskawâhtowin |
|-----------------|--|---------------|

| | | |
|-------------|---|--------------------------------------|
| Sort | To separate objects into groups according to properties or characteristics. [1] | (1) pahpiskihciskewin (2) kikwayi |
|-------------|---|--------------------------------------|

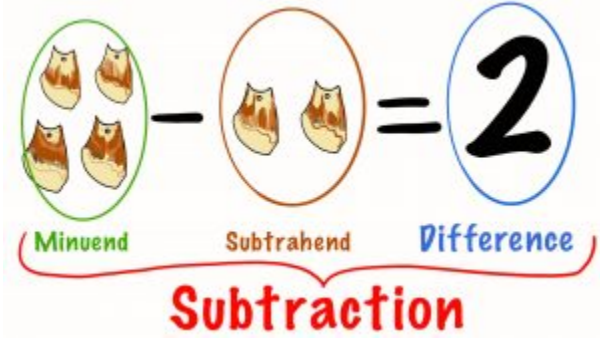
| | | |
|--|-----------------------------------|--------------|
| Square | A rectangle with four equal sides | ē-ayisaweyaw |
|  | | |

| | | |
|---|--|--|
| Square root | Square root A factor that, when multiplied by itself, equals the number. [3] | akihtāsowina kawī-akicihkātik niswaw |
| 3 is a square root of 9, because $3 \times 3 = 9$ | | |

| | | |
|----------------|--|---|
| Squared | A quantity obtained by multiplying a number or variable by itself. [4] | akihtāsowina ohci kakicihkātik niswaw |
|----------------|--|---|

| | | |
|-----------------|--|---------------------------|
| Standard | A reference against which others are compared. [4] | kikway ka nīpawemakahk |
|-----------------|--|---------------------------|

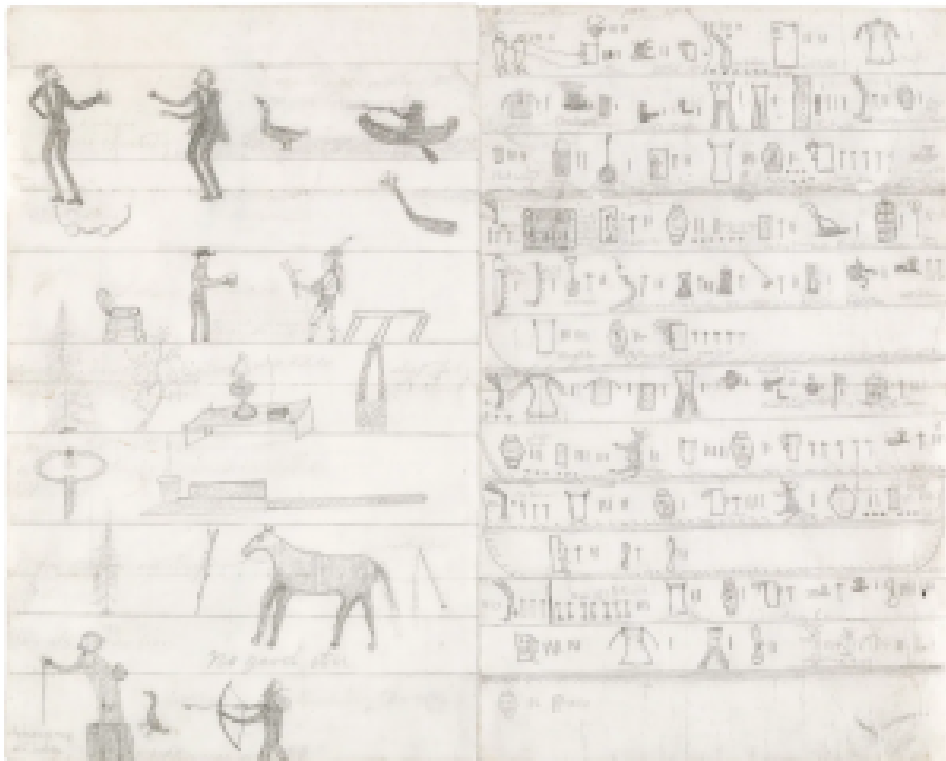
| | | |
|-----------------|---|-----------------|
| Subtract | To take one or more quantities away from another; to find one quantity known as the difference. [1] | ka pahkwenikehk |
| $17 - 9$ | | |

| | | |
|--|----------------------|---------------|
| Subtraction | Arithmetic operation | pahkwenikewin |
|  | | |

| | | |
|-----|--|-------------------|
| Sum | The result of adding two or more quantities. [1] | kâ mâdawôkimih |
|-----|--|-------------------|

$$\begin{array}{c} \text{Addend} + \text{Addend} = \text{SUM} \\ \text{Addition} \end{array}$$

| | | |
|--------|---|--------------|
| Symbol | A letter, figure or sign used to represent a quantity, sentence, relation, function, or an object or operation. [4] | ê-itwêmakahk |
|--------|---|--------------|



[10]

T



| Table (data, information) | A systematic or orderly list of values, usually presented in rows and columns. [1] | weyascikewnahtik | | | | | | | | | | | | | | | | | | |
|--|--|------------------|---------|-----------|-------------|------|----|-----|-----|----|-----|--------|----|-----|--------|----|-----|------|----|-----|
| <table><tr><th>Student</th><th>Mass (kg)</th><th>Height (cm)</th></tr><tr><td>John</td><td>52</td><td>154</td></tr><tr><td>Ann</td><td>48</td><td>150</td></tr><tr><td>Helene</td><td>58</td><td>145</td></tr><tr><td>George</td><td>61</td><td>158</td></tr><tr><td>Jane</td><td>51</td><td>142</td></tr></table> | | | Student | Mass (kg) | Height (cm) | John | 52 | 154 | Ann | 48 | 150 | Helene | 58 | 145 | George | 61 | 158 | Jane | 51 | 142 |
| Student | Mass (kg) | Height (cm) | | | | | | | | | | | | | | | | | | |
| John | 52 | 154 | | | | | | | | | | | | | | | | | | |
| Ann | 48 | 150 | | | | | | | | | | | | | | | | | | |
| Helene | 58 | 145 | | | | | | | | | | | | | | | | | | |
| George | 61 | 158 | | | | | | | | | | | | | | | | | | |
| Jane | 51 | 142 | | | | | | | | | | | | | | | | | | |

| | | |
|-------|--|---------------------------|
| Tally | A recording of the number of items in a set; used to keep track of data being counted; usually consists of strokes grouped in fives. [1] | ka asatahk akihcikewin |
| | | |

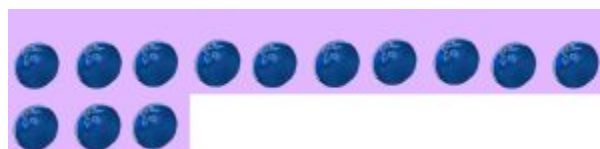
| | | |
|-----|----|----------|
| Ten | 10 | mitâtaht |
| | | |

| | | |
|---------------|---|------------|
| Tens (number) | the place value located two places to the left of the decimal point in a number; shows how many tens are in a number. [1] | mitātahtaw |
|---------------|---|------------|

| | | |
|-------|------|---------------|
| Tenth | 10th | mwecimitātaht |
|-------|------|---------------|

| | | |
|-------|-----|--------------|
| Third | 3rd | mwecinistwâw |
|-------|-----|--------------|

| | | |
|----------|----|----------|
| Thirteen | 13 | nistosâp |
|----------|----|----------|

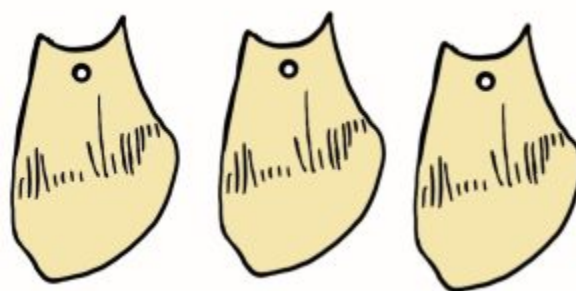


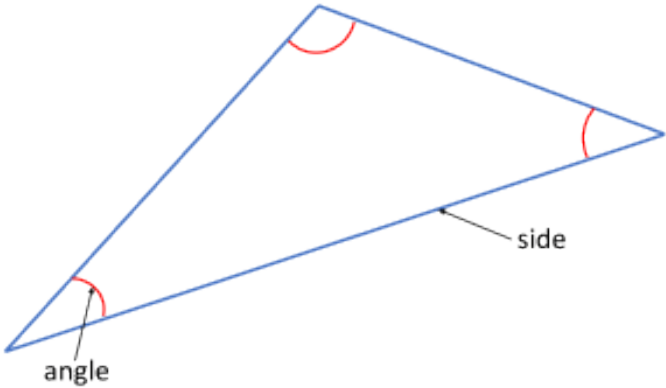
| | | |
|--------|----|--------------|
| Thirty | 30 | nistomitanaw |
|--------|----|--------------|

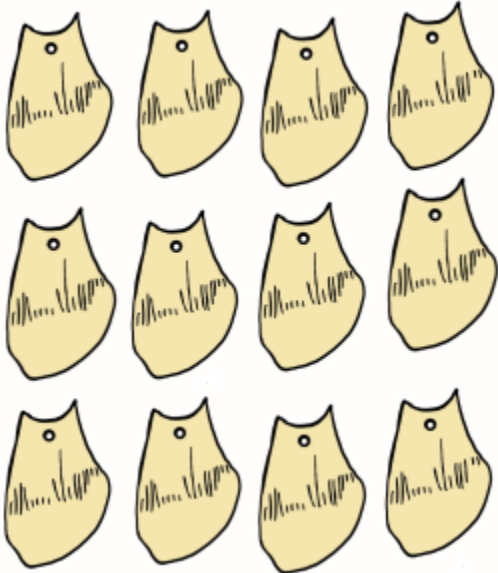



| | | |
|----------|------|----------------------------|
| Thousand | 1000 | kihchi mitatahtomitanaw |
|----------|------|----------------------------|

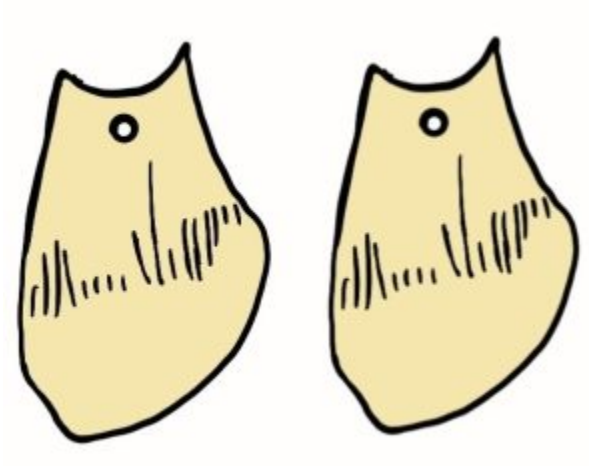
| | | |
|-------|---|-------|
| Three | 3 | nisto |
|-------|---|-------|



| | | |
|--|--|-------------------|
| Triangle | A polygon with three sides and three angles. [1] | ē-nistowēyapiskāk |
|  | | |

| | | |
|---|----|----------|
| Twelve | 12 | n̄isosâp |
|  | | |

| | | |
|--|----|-----------|
| Twenty | 20 | n̄istanaw |
|  | | |

| | | |
|--|---|------|
| Two | 2 | nîso |
|  | | |

U

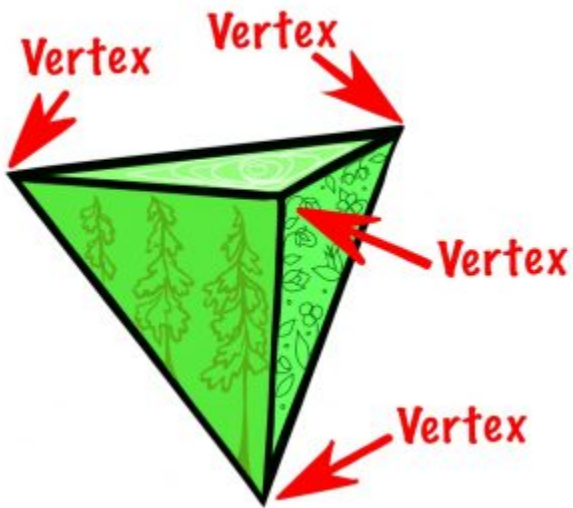


| | | |
|---------|--|------------------------------|
| Unit | A reference value of a quantity used to measure or compare other values of the same quantity. [4] | peyak kîkway |
| Unknown | a symbol representing an unknown quantity: in algebra, analysis, etc., frequently represented by a letter from the last part of the alphabet, as x, y, or z. [6] | ekâ ka nistaweyihtâkosihk |

V



| | | |
|----------|---|-----------------|
| Value | How much something is worth. [5] | iyitakitihk |
| Variable | A symbol used to represent a number in an expression (e.g., $2n + 3$) or to represent an unknown value in an equation (e.g., $a + 3 = 5$) [1] | meskocipayiw |
| Vertical | A line at right angles to the horizon; a line extending up and down without extending left and right; a line perpendicular to the horizon. [1] | kwayaskwaskitew |

| | | |
|---|--|-----------------|
| Vertices | The points of intersection of two rays that form an angle, two sides of a polygon or two edges of a solid. [2] | kwayaskwakitiwa |
|  <p>A 3D diagram of a triangular prism. The prism is colored green with black outlines. The front face is a triangle with a pattern of trees. The back face is a triangle with a pattern of leaves. The edges connecting the front and back faces are vertical. Four red arrows point to the vertices of the prism, each labeled 'Vertex' in red text. The arrows point to the top-left, top-right, bottom-left, and bottom-right vertices.</p> | | |

W



| | | |
|--------------|--|----------|
| Whole number | A number consisting of one or more units, without fractions. [2] The set of counting numbers plus 0 $\{0, 1, 2, 3, \dots\}$ [1] | kahkiyaw |
|--------------|--|----------|

Z



| | | |
|------|--|------------|
| Zero | The number that indicates no quantity, size, or magnitude; zero is neither negative nor positive; zero is the additive identity. [1] | namahkiway |
|------|--|------------|

REFERENCES

REFERENCES

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