

CREE DICTIONARY OF MATHEMATICAL TERMS WITH VISUAL EXAMPLES

CREE DICTIONARY OF MATHEMATICAL TERMS WITH VISUAL EXAMPLES

ARZU SARDARLI AND IDA SWAN

UNIVERSITY OF REGINA
REGINA



CREE DICTIONARY OF MATHEMATICAL TERMS WITH VISUAL EXAMPLES Copyright © 2022 by Arzu Sardarli and Ida Swan is licensed under a Creative Commons Attribution 4.0 International License, except where otherwise noted.

Contents

Foreword	1
Main Body	
A	3
B	11
C	13
D	19
E	23
F	28
G	33
H	34
I	37
L	38
M	39
N	40
O	44
P	47
Q	49
R	50
S	51
T	57
U	61
V	62
W	64
Z	65
REFERENCES	66

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

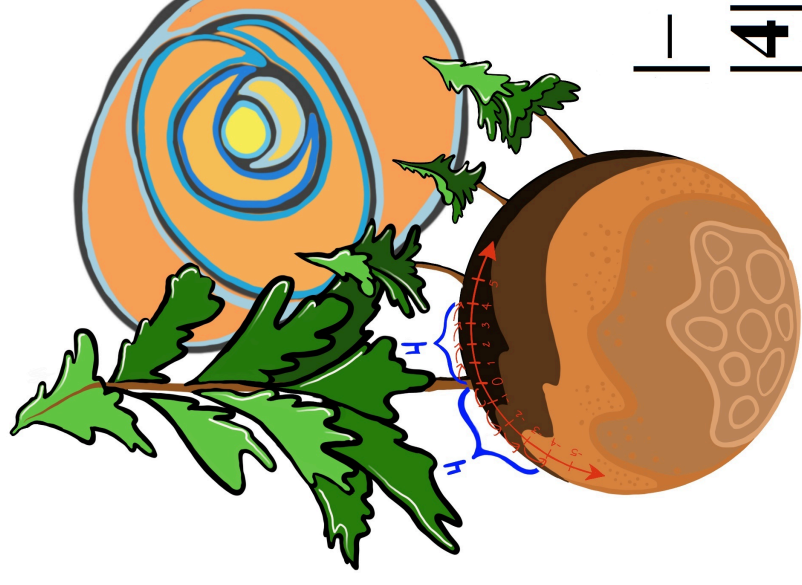
Associate Professor, Indigenous Art
First Nations University of Canada

A



Absolute value

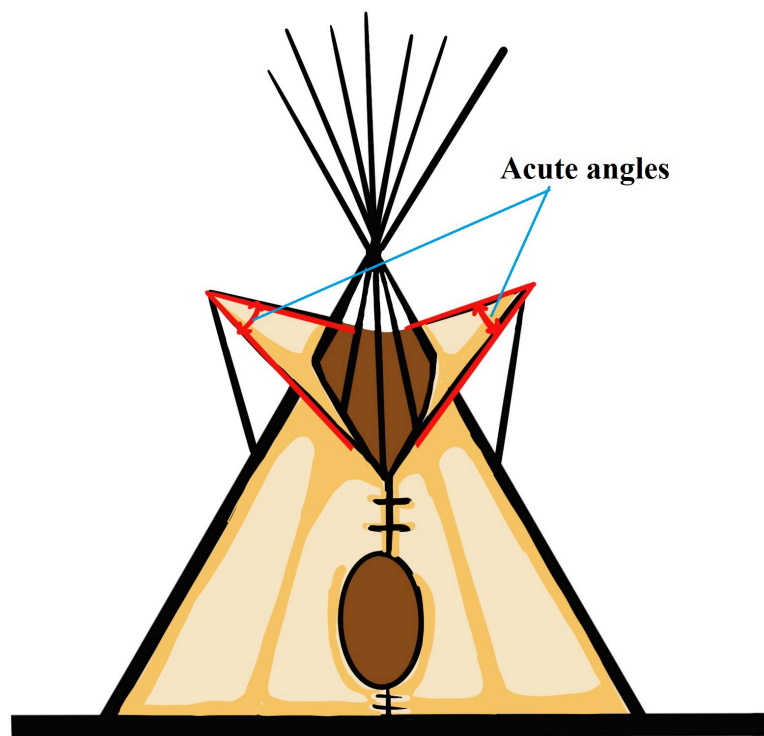
The absolute value of an integer is its distance from zero on the number line. [8]



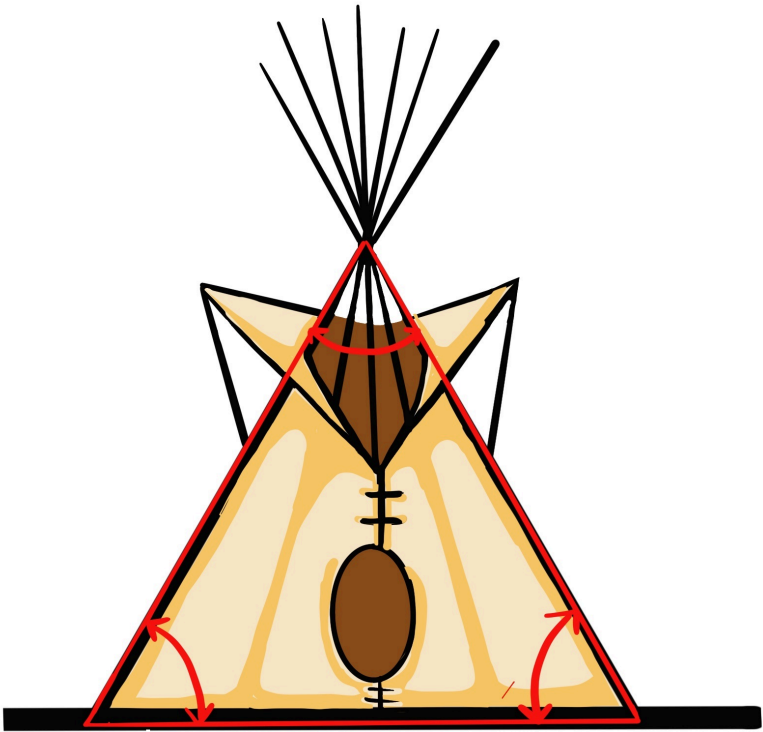
Acute angle

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

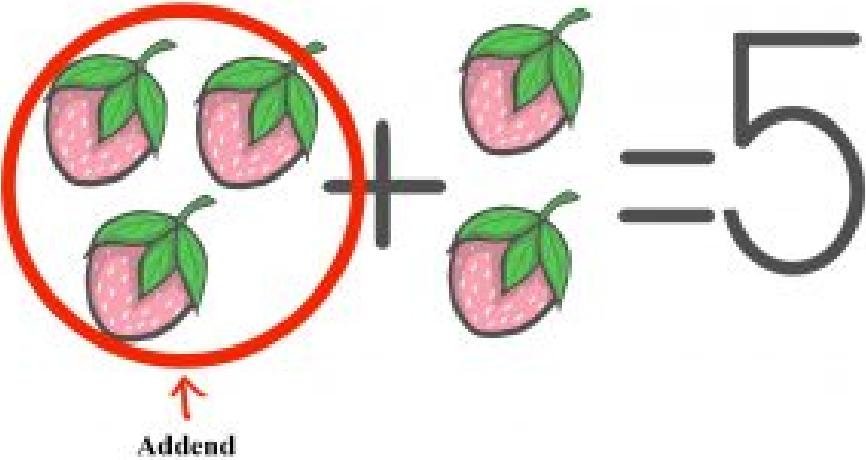
nōti-kahkahkīyaw

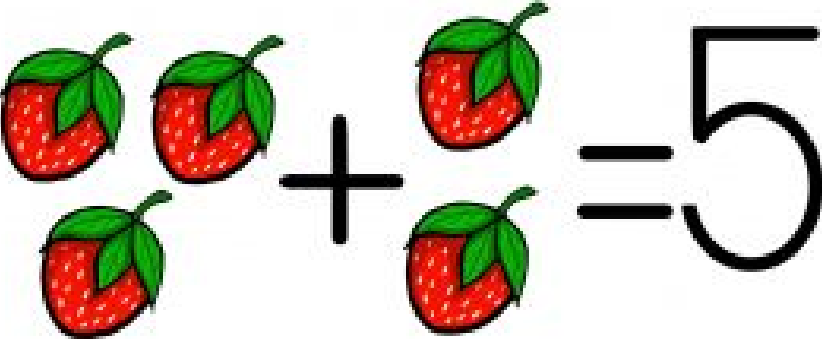


Acute triangle	An acute triangle has three angles that measure between 0 and 90 degrees. [8]	(1) otōskwana-nisto (2) ati-isko keka-mitahtātōmitanaw
-----------------------	--	--



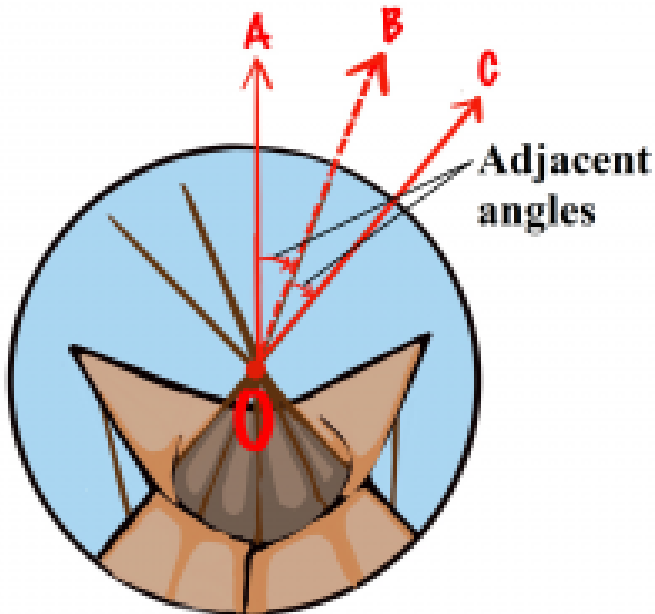
Add	To combine two or more quantities to find one quantity, called a total or a sum. [1]	māmiwi-akihta
3 + 4		

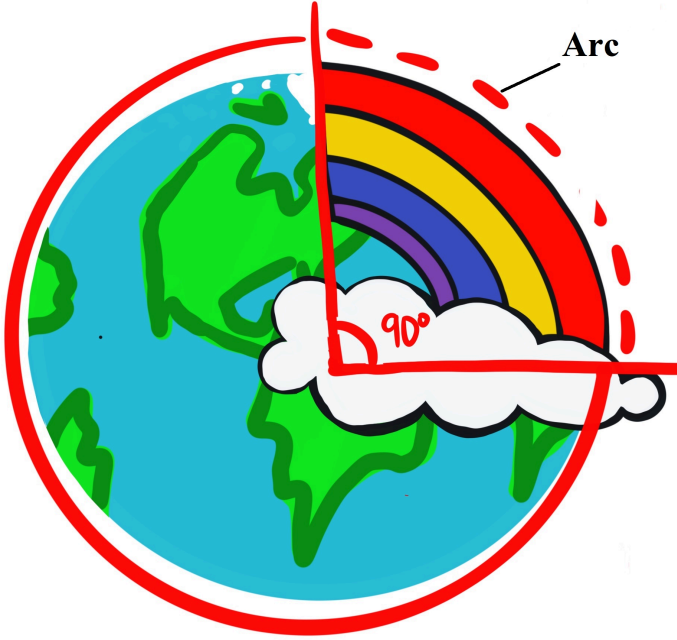
Addend	Addends are numbers being added together. [8]	māmiwi-akihtasona
		

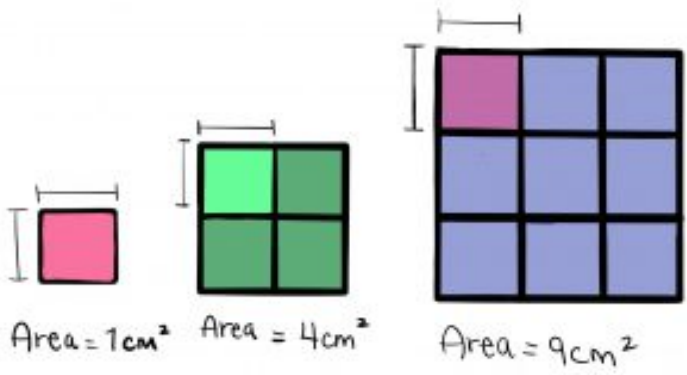
Addition	Mathematical operation of combining two or more numbers into a sum. [1]	takohakihcikewin
		

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

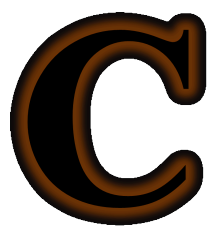


Backward	Directed toward the back or past. [6]	asi-akiciki
		

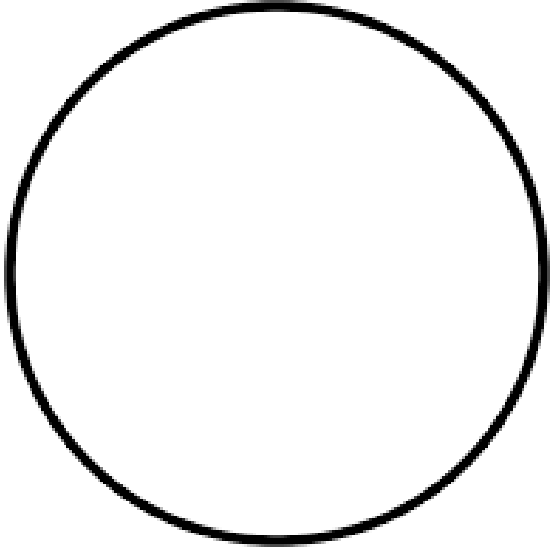
Before	In front of or earlier than. [4]	pâmwayês
2 is just before 3		

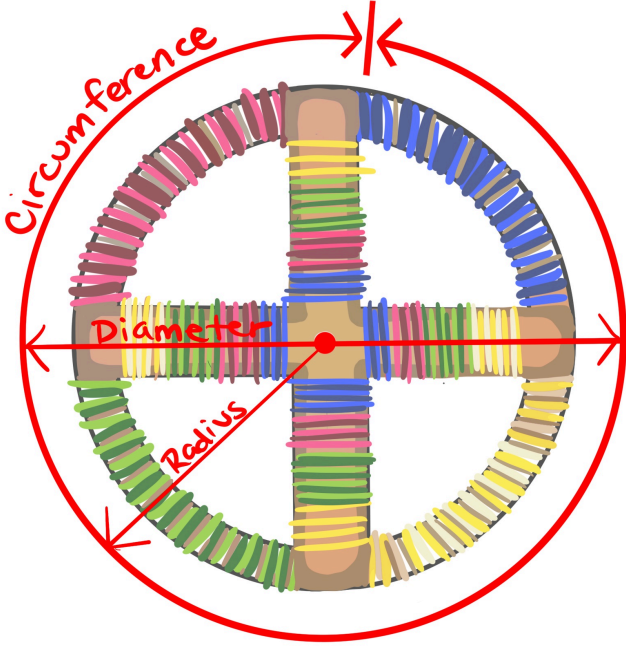
Brackets	Signs, “[” and “]”, or “(” and “)” used to indicate that the operation(s) on the quantities enclosed should be worked out first or should be treated as a unit. Brackets are normally used after parentheses are used. [4]	sîtwahpicikew
$\begin{aligned} &2 \times [(6 - 4) \times 3 + 1] - 1 \\ &=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

C



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

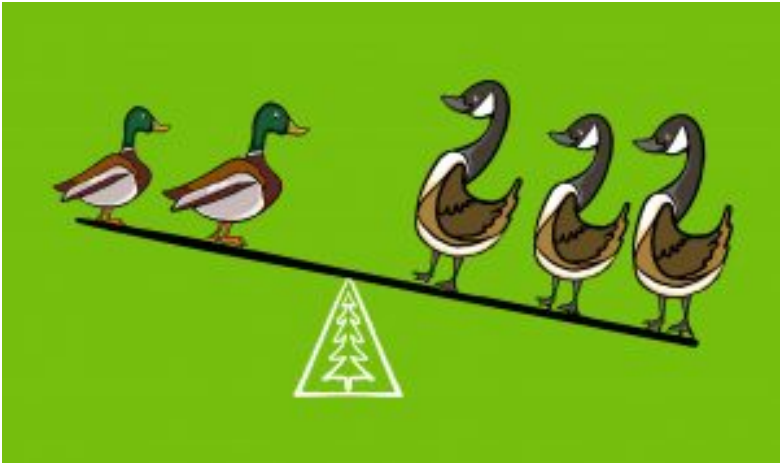
Circle	A closed, perfectly round curve consisting of all the points that are equidistant from a fixed point inside the curve called the center. [4]	wâwiyiyaw
		

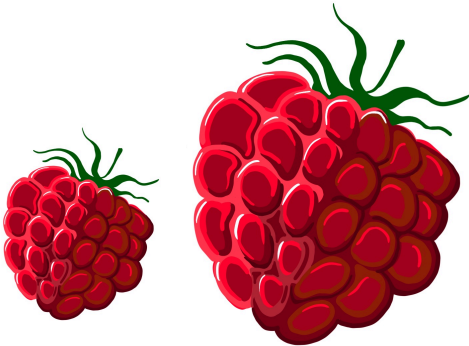
Circumference	The perimeter (length) of a circle, determined as $C = 2\pi r$, where $\pi \approx 3.14$ and r is the radius of the circle.	wâsakâm
		

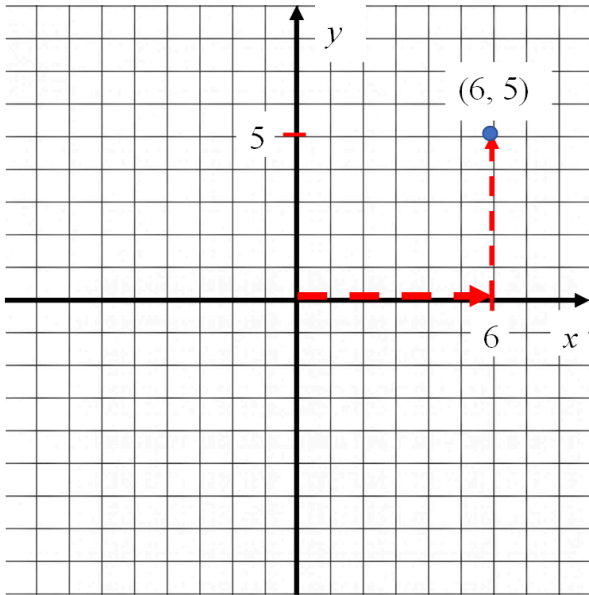
Coefficient	A constant that multiplies a variable. [1]	akihtàsona kâpatahk
<p>in $3x + 4y = 14$ 3 is the coefficient of x, 4 is the coefficient of y</p>		

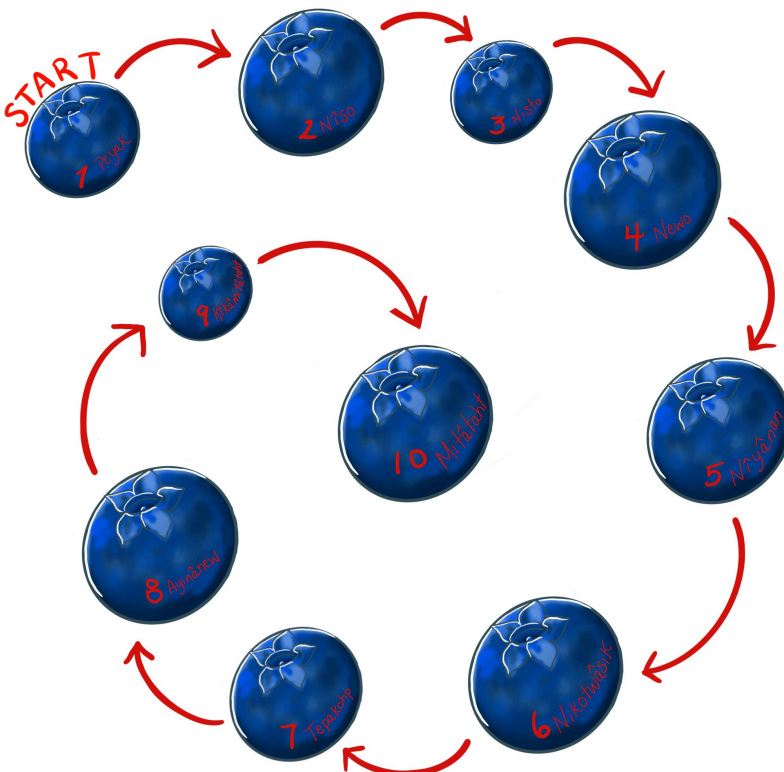
Coin	Metal money. [5]	sônîyâs
 <p style="text-align: center; color: red; font-size: 2em; font-weight: bold;">Coins</p>		

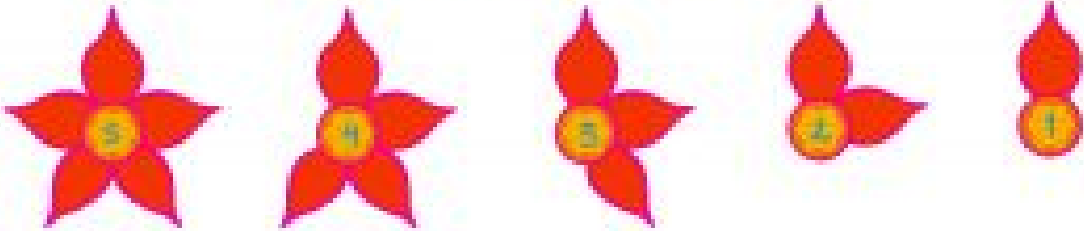
Commutative	Property of addition and multiplication that allows the numbers to be added or multiplied in any order, without affecting the sum or product of the operation. [3]	(1) papiyakwan ithikohk (Woodland) (2) pahpeyakwan iyikohk (Plain)
$6 + 12 = 12 + 6$ $3 \times 5 = 5 \times 3$		


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 kanakiskätomakaki
		

Count	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> 		

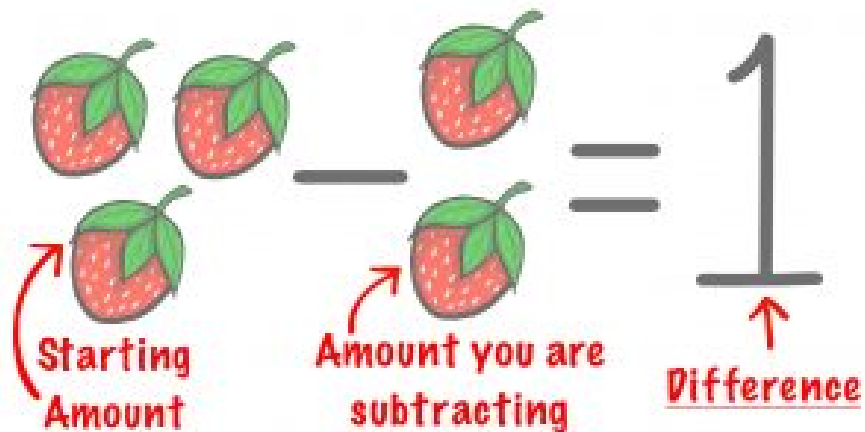


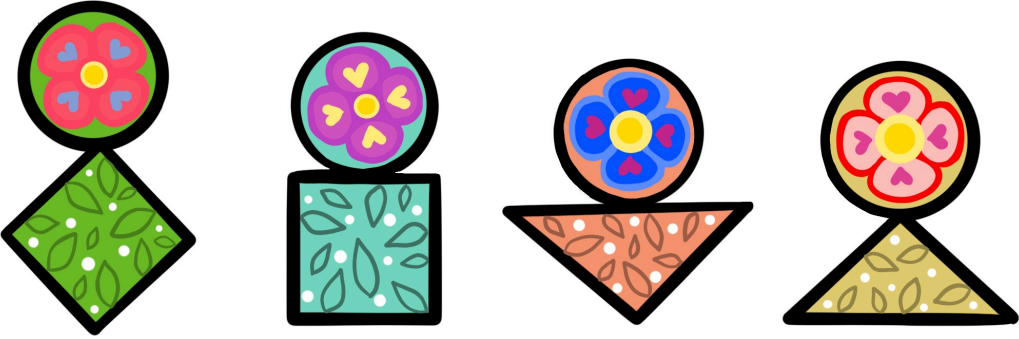
Data	Information that is collected first or second hand. Data are usually numerical, organized in charts and displayed by graphs. [1]	(1) nōkanwa (2) akihtāsōwinah										
<p>Percentage of Cree speakers in Canadian Provinces [9]</p> <table><tr><th>Provinces</th><th>Concentrations</th></tr><tr><td>Saskatchewan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




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) pëyakwan ayitaw (2) ispîhtawa-këyhtakwanwah
$3(5 + 7) = 3 \times 5 + 3 \times 7$		

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

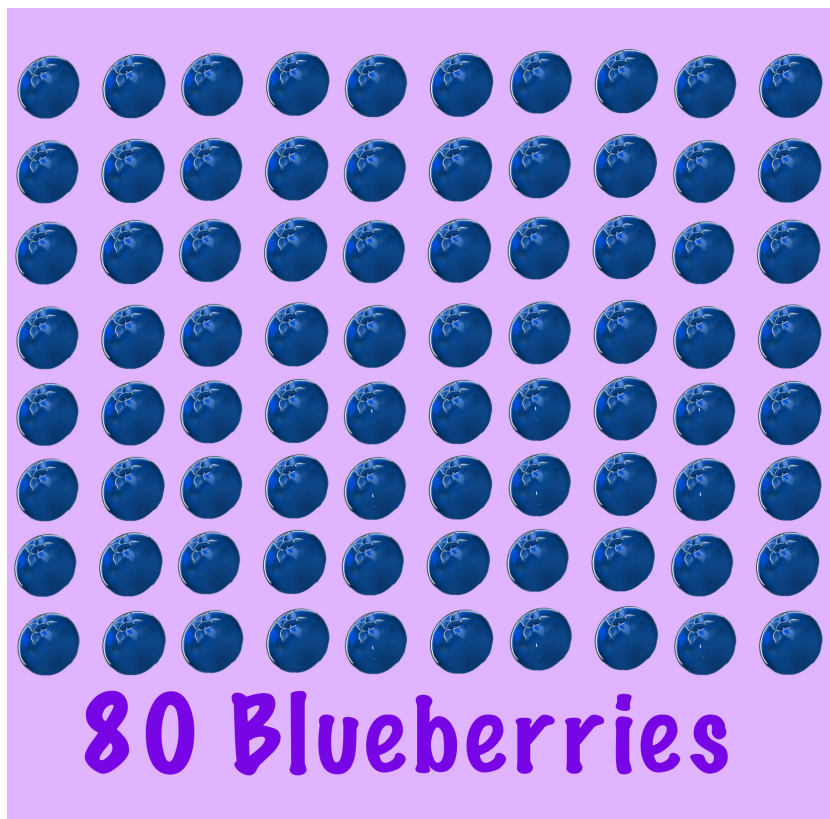
Dollar	The main unit of money in many countries such as United States, Canada, Australia, and New Zealand. [4]	pëyakwâpisk
 <p>Loonie</p>		

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

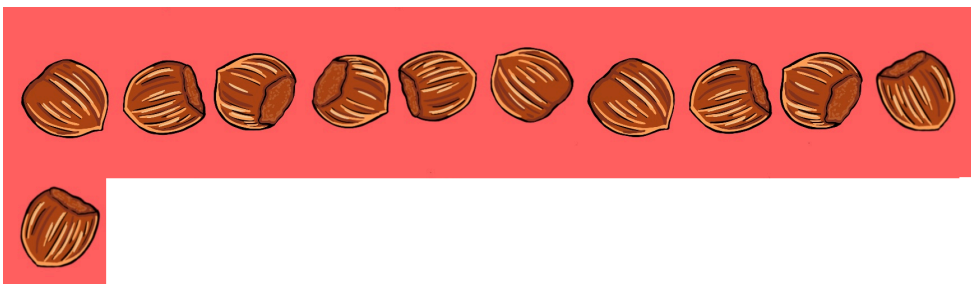
E


Eight	8	ayênânêw
<div><p>8 Cattails</p></div>		
Eighth	8th	mweci-ayinânêw

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

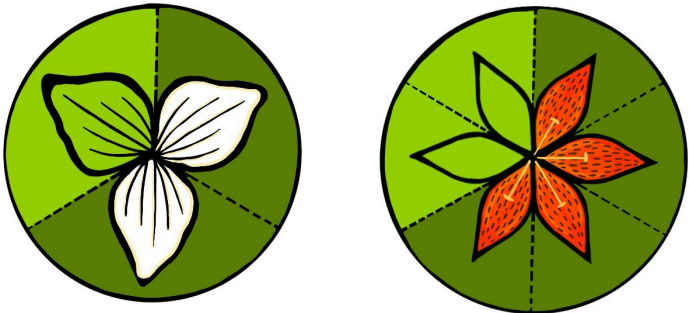


Eleven	11	pêyakosâp
--------	----	-----------



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
$x + 2 = 72$ $y - 3x = 12$		

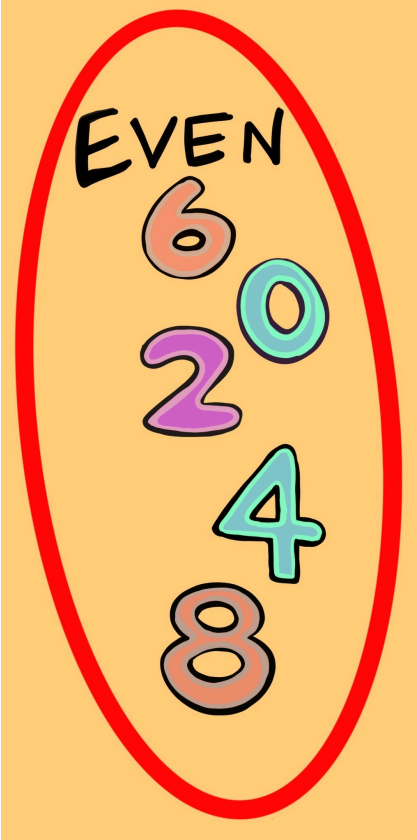
Equivalent	Equal in value. [1]	pah pêyakwan iyikohk
 $\frac{2}{3} = \frac{4}{6}$		

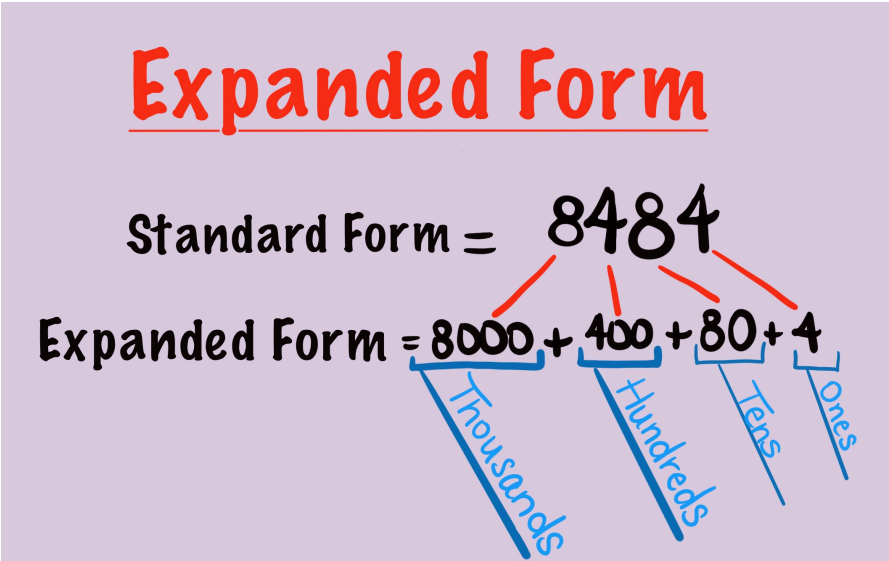
Estimate	An answer that is an approximation. [1]	eyoko nantow
-----------------	---	--------------

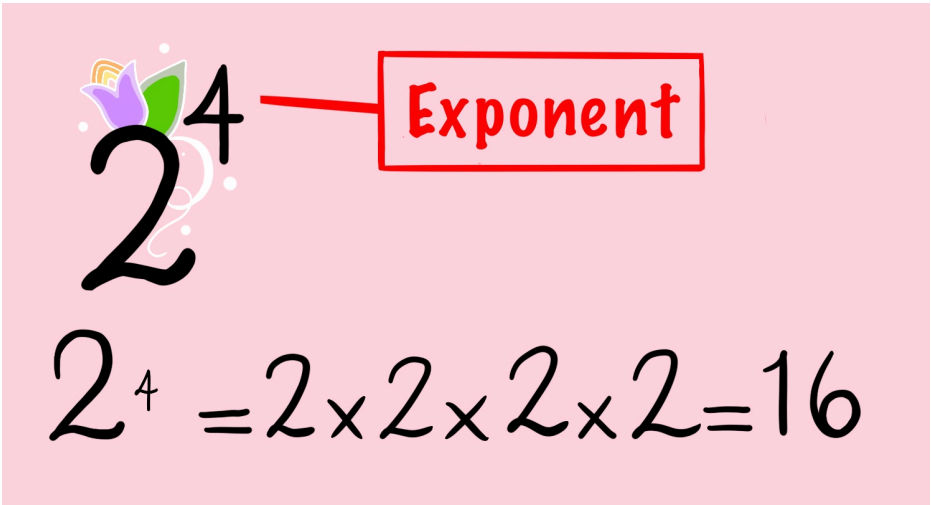
Evaluate	To find the value of a mathematical expression. [1]	kikway koyakihtamihk
-----------------	---	-------------------------

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

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 style="text-align: center;"><u>Expanded Form</u></p> <p style="text-align: center;">Standard Form = 8484</p> <p style="text-align: center;">Expanded Form = 8000 + 400 + 80 + 4</p> <p style="text-align: center;">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 style="text-align: center;">Exponent</p> <p style="text-align: center;">$2^4 = 2 \times 2 \times 2 \times 2 = 16$</p>		


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

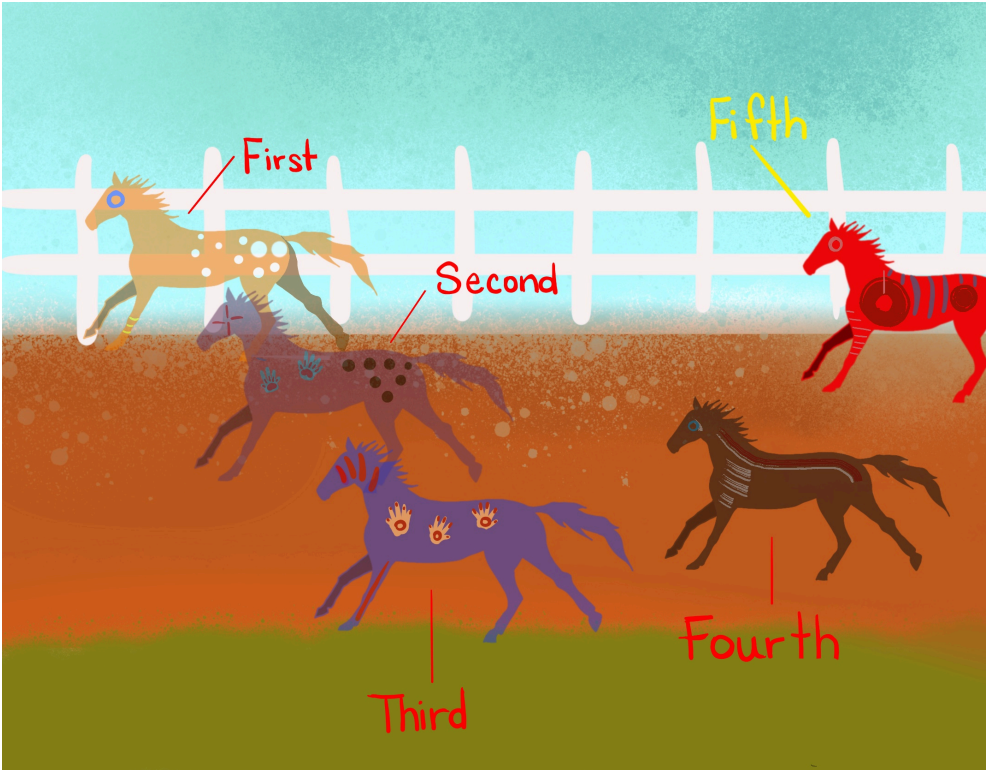
F



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		

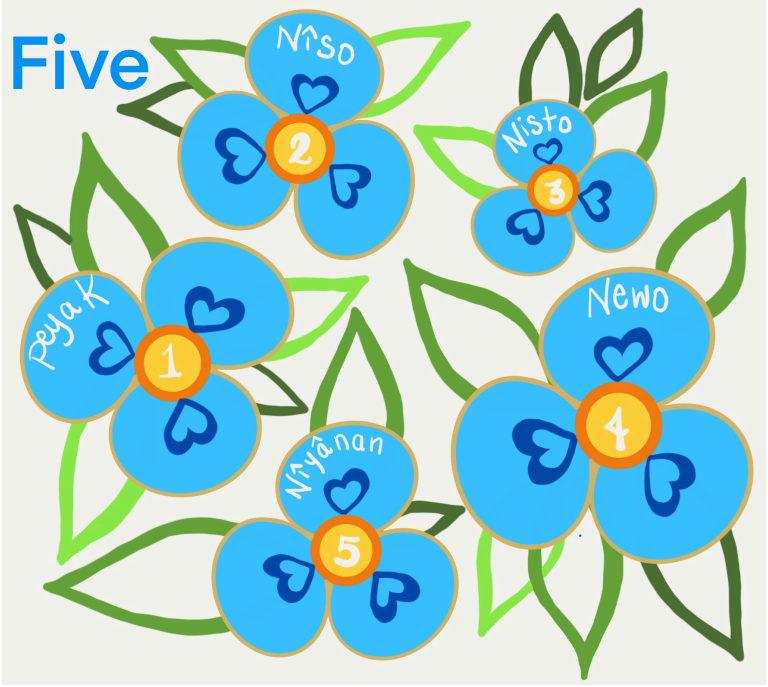
Factoring	A number or expression that is multiplied by another to yield a product (e.g., a factor of 24 is 8 because 8 × 3 = 24, and a factor of 3n is n because 3 · n = 3n). [1]	pa piskicipita
$5x - 20 = 5(x - 4)$ $24 = 4 \times 6$ $36 = 2 \times 2 \times 3 \times 3$		

Fifteen	15	neyānanosâp
		

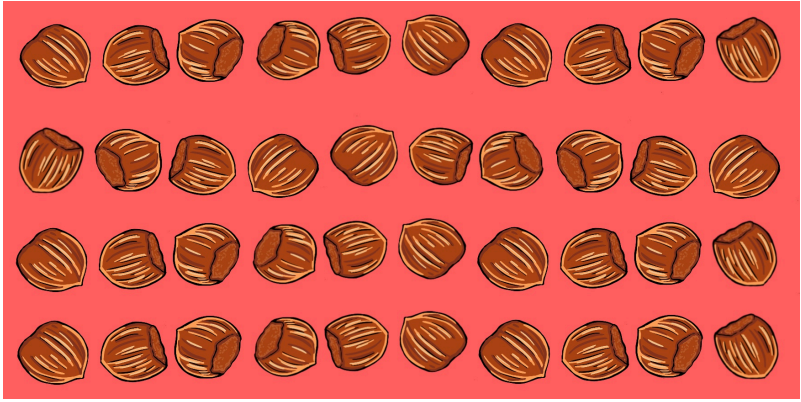
Fifth	Constituting number five in a sequence.	mweciniyânan
 <p>An illustration showing five horses running from left to right across a field. The horses are labeled with red text and lines: 'First' (yellow horse), 'Second' (dark purple horse), 'Third' (light purple horse), 'Fourth' (dark brown horse), and 'Fifth' (red horse). The background features a white fence and a blue sky.</p>		


Fifty	50	nîyânanomitanaw
 <p>An illustration showing 50 hazelnuts arranged in five rows of ten. Below the nuts, the text '50 Hazelnuts' is written in a large, bold, black font.</p>		

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

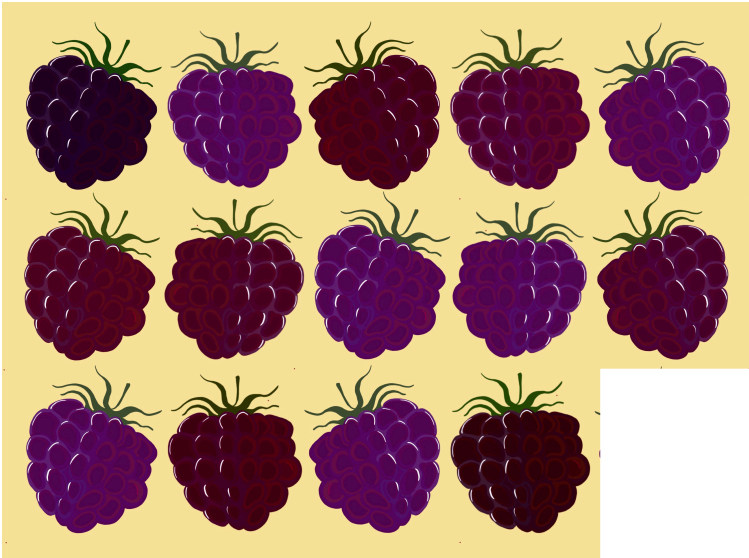
Five	5	nîyânan
		

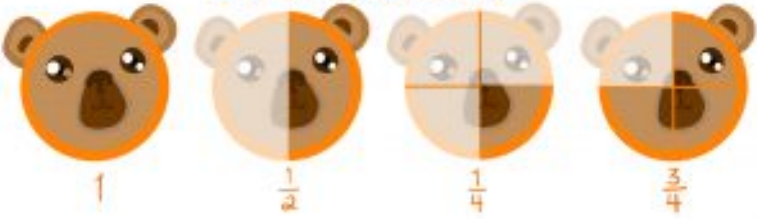
Form	The manner or style of arranging and coordinating parts. [6]	kayisenakwahk
<p>standard form: $3x + 2y = 7$</p> <p>exponential form: $3 \times 3 \times 3 \times 3 \times 3 = 3^5$</p> <p>expanded form: $537 = 5 \times 100 + 3 \times 10 + 7 \times 1$</p>		

Forty	40	nêwomitanaw
		

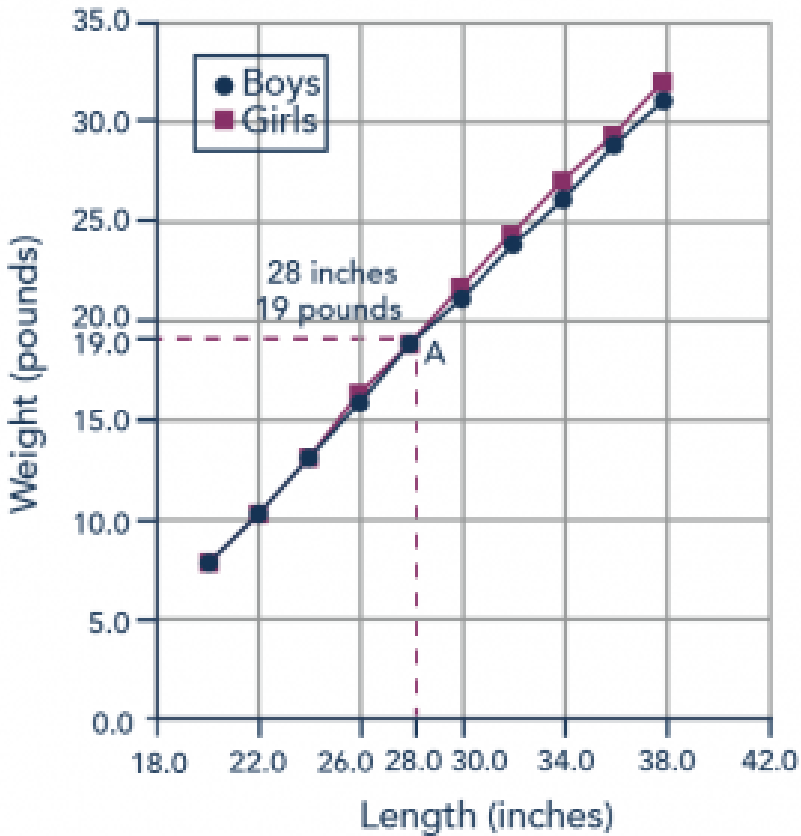
Four	4	nêwo
		

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>		



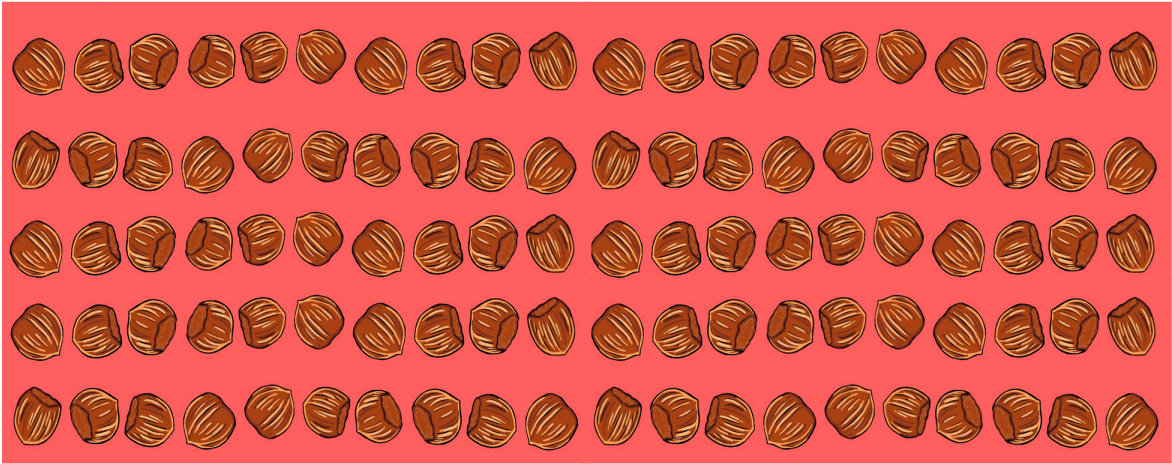
Graph	A visual representation of data. [3]	isinakwak																																	
<div><table border="1"><caption>Estimated data points from the graph</caption><thead><tr><th>Length (inches)</th><th>Boys Weight (pounds)</th><th>Girls Weight (pounds)</th></tr></thead><tbody><tr><td>20.0</td><td>8.0</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>19.5</td></tr><tr><td>29.0</td><td>21.0</td><td>21.5</td></tr><tr><td>31.0</td><td>24.0</td><td>24.0</td></tr><tr><td>33.0</td><td>26.5</td><td>27.0</td></tr><tr><td>35.0</td><td>29.0</td><td>29.5</td></tr><tr><td>37.0</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	19.5	29.0	21.0	21.5	31.0	24.0	24.0	33.0	26.5	27.0	35.0	29.0	29.5	37.0	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	19.5																																	
29.0	21.0	21.5																																	
31.0	24.0	24.0																																	
33.0	26.5	27.0																																	
35.0	29.0	29.5																																	
37.0	31.0	32.0																																	
Group	Any collection or assemblage of persons or things. [6]	ka âmawiyaktihk																																	

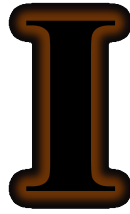
H



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 akītasōn
<p style="text-align: center;">—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
		

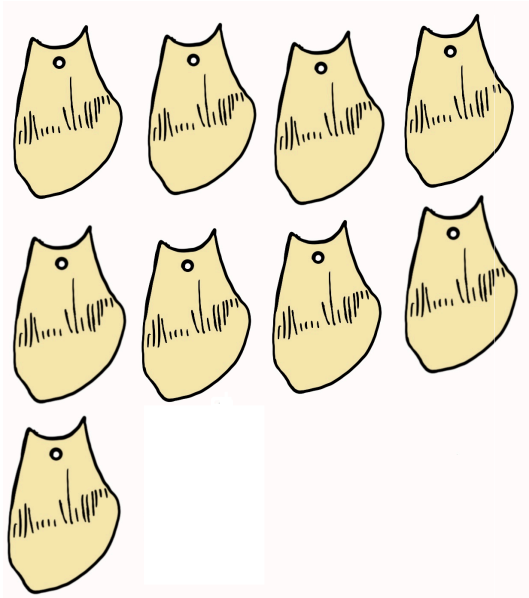
M

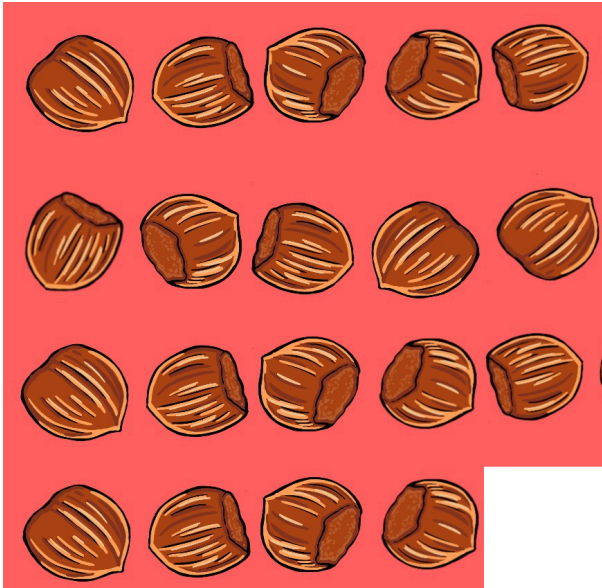


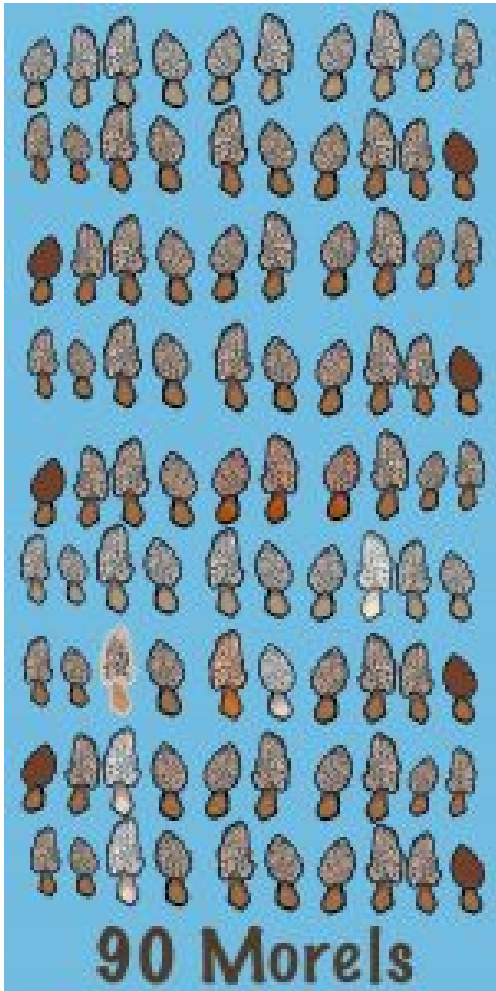
Match	A person or thing that is an exact counterpart of another. [6]	tīpitin
Minus	Refers to subtraction or the symbol of subtraction. [1]	pahki otinamakewin
Money	Coins and paper bills used for buying and selling. [5]	sōniyâw
More	Greater in number, size, or extent. [4]	ayiwâk
Multiple	The product of a given whole number and any other whole number. [1]	piskic akihtāsona
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.		
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	kikâmitâtaht
<div data-bbox="548 835 1073 1428"></div>		

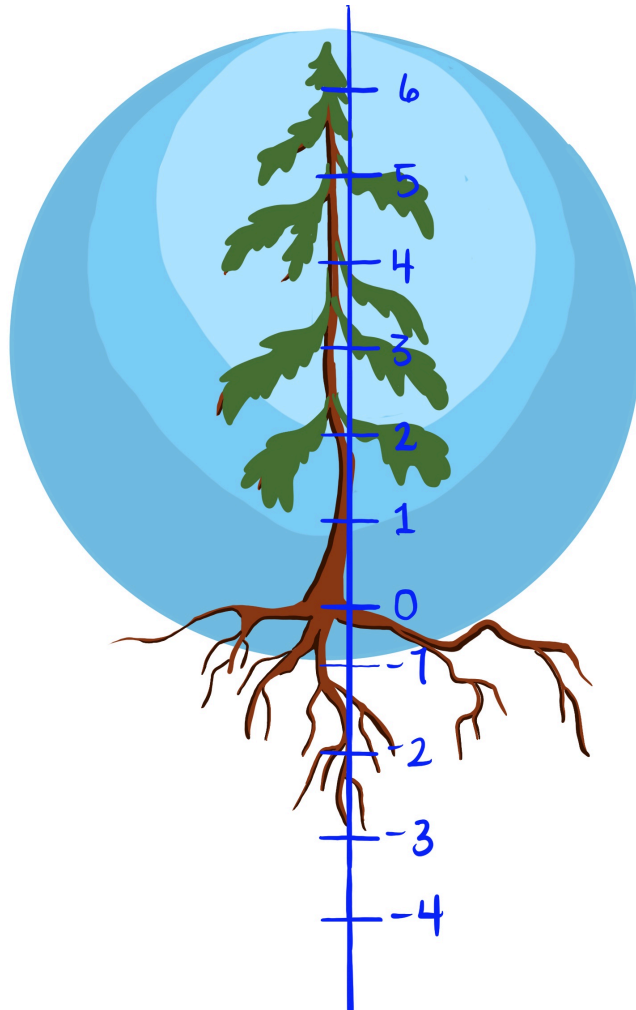
Nineteen	19	kîkâmitâtahtosâp
		

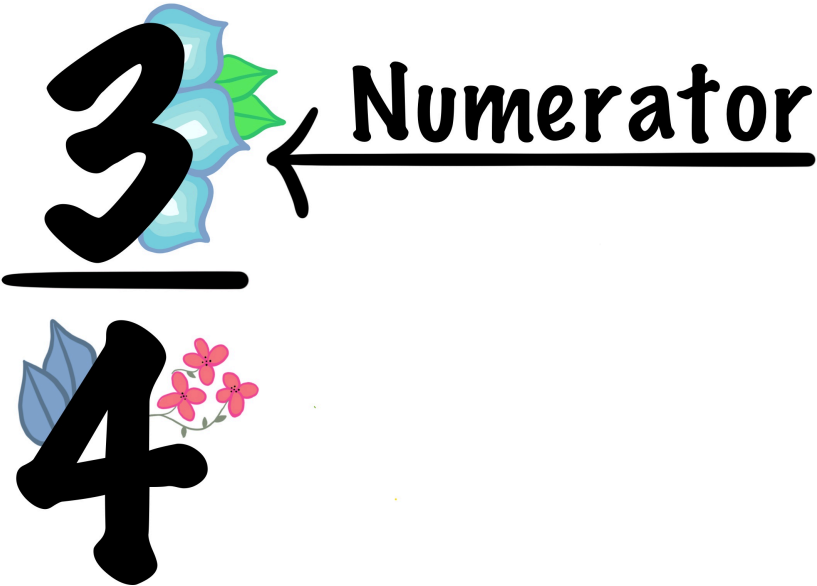
Ninety	90	kîkâmitâtahtomitanaw
		

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
-------------	--	----------------------------



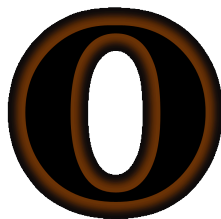
Numerator	The number above the line in a fraction that can state one of the following: the number of elements taken from a set or from equal parts.	tahkoc akitason
		

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
$35 \sqrt{4.5 - 1.2 \sqrt{5 \times 4 - 4}}$		

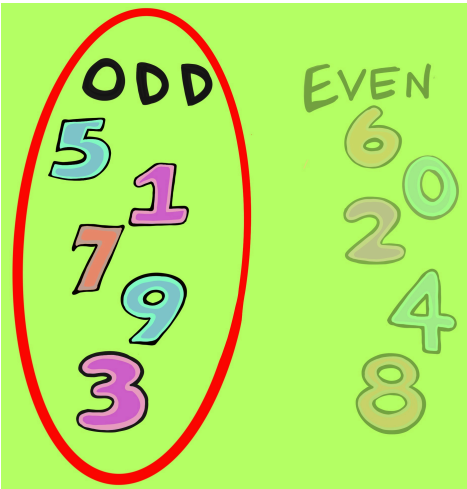
Numerical pattern	A sequence of numbers following a certain rule	akihtāso kaskomakāki
<p>1, 5, 9, 13, ... (arithmetic progression) 2, 6, 18, 54, ... (geometric progression) 0, 1, 1, 2, 3, 5, 8, 13, ... (Fibonacci Sequence)</p>		

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
		

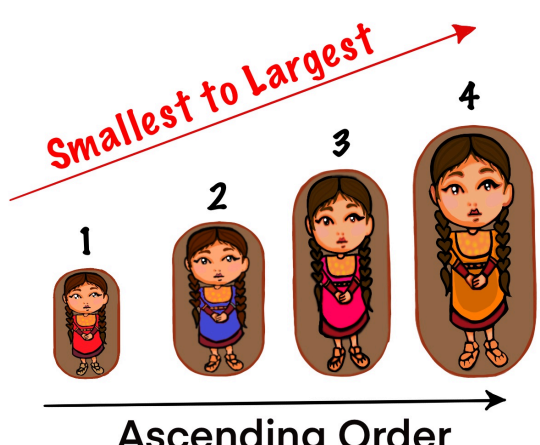
One	1	piyak
-----	---	-------

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]	oyëyhtamô akihtâsôwin
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">+</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">−</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">×</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">÷</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
-----------------	---	---------------

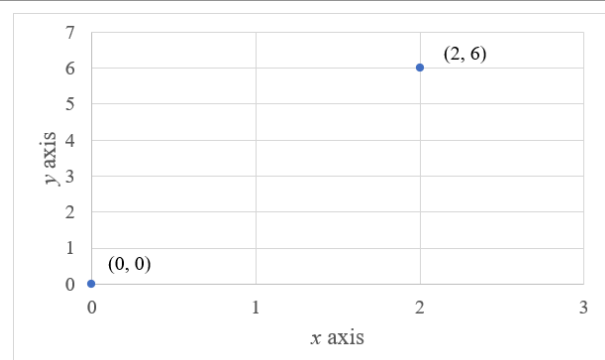
Order	To place numbers or objects in a sequential arrangement (e.g., least to greatest or heaviest to lightest). [1]	îyaskohtascikêwin
--------------	--	-------------------



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
---------------	---	---------

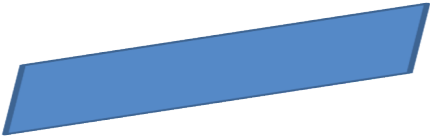
Outside	Beyond the boundary of or limits. [5]	wayawitimihk
----------------	---------------------------------------	--------------

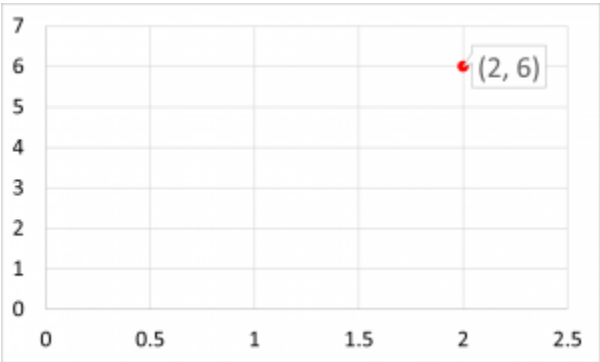
P



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
Algebraic sequence: 3, 7, 11, 15, 19,... Geometric sequence: 2, 6, 18, 54, 162,... Fibonacci sequence: 0, 1, 1, 2, 3, 5,...		

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



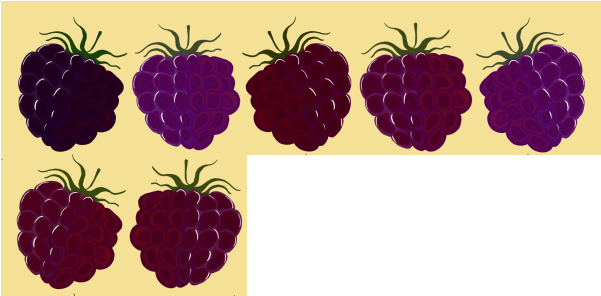
Quantity	An amount [5]	itahto
Quarter (one-fourth of a number)	One of the four equal or equivalent part [6]	peyak sônîyas

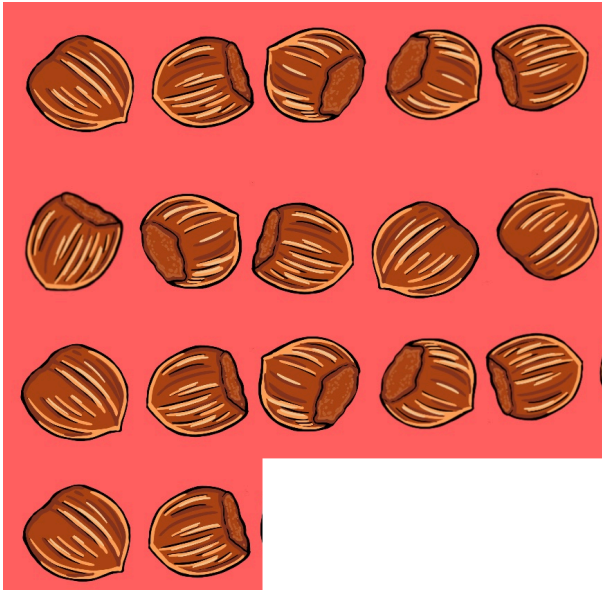
R



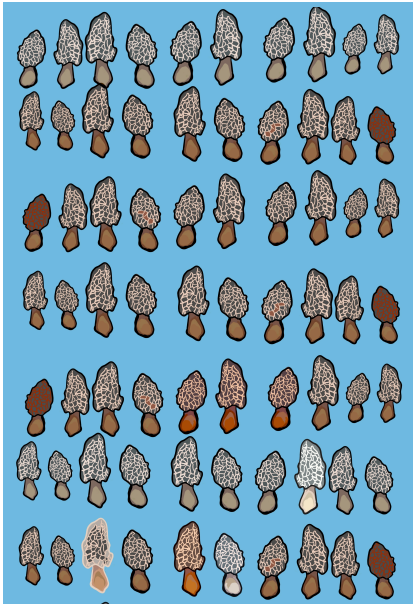
Range	The set of all possible values for the output of the function. [4]	êh isi tahtipêwakintek
Relationship (between quantities)	A connection or association [6]	êhwîciyawê-kihtêk
Rule (mathematical)	A principle or regulation governing conduct, action, procedure [6]	wiyasiwêwin



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]	tāpiskōc
-------------------	--	----------

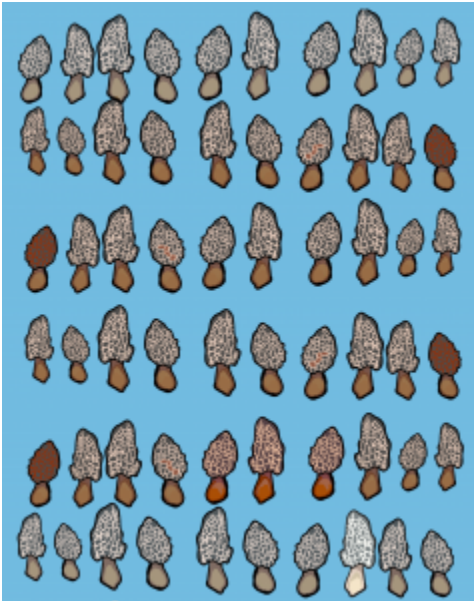
Six	6	nikotwâsik
------------	---	------------

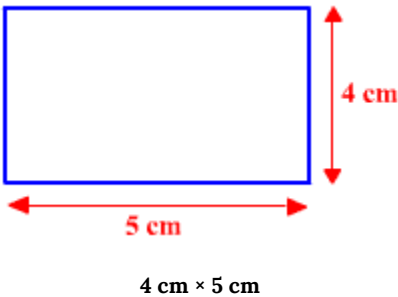


Sixteen	16	nikotwâsosâp
----------------	----	--------------



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

Sixty	60	nikotwâsomitanaw
		

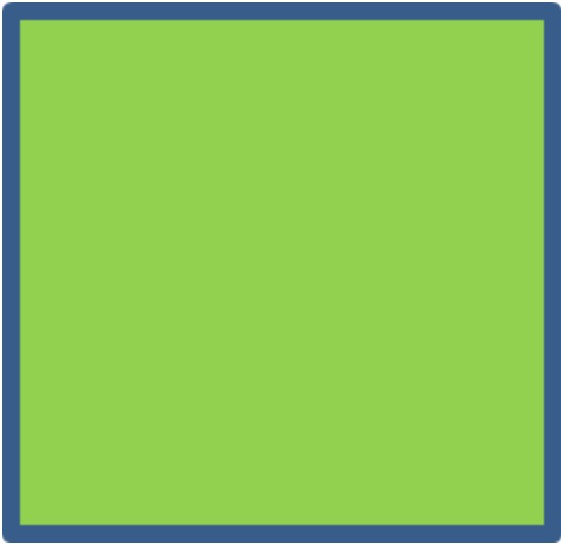
Size	The spatial dimensions, proportions, magnitude, or bulk of anything. [6]	tānimayikohk kîspehcak
		

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
-------------	---	--------------------------------------

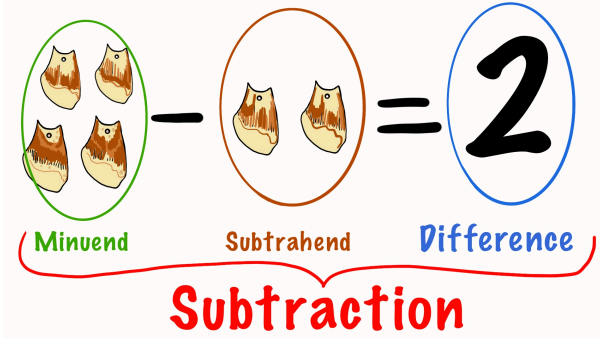
Square	A rectangle with four equal sides	ē-ayisaweyaw
		

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 $3 \times 3 = 9$		

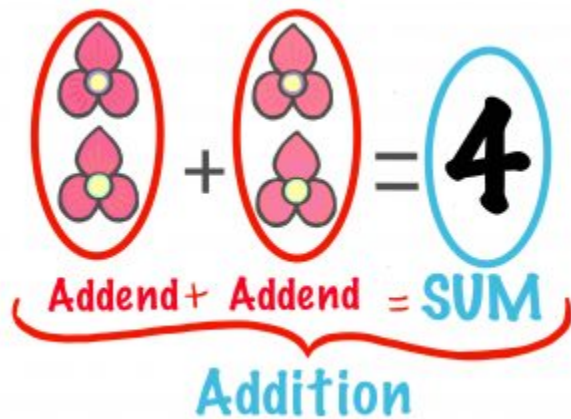
Squared	A quantity obtained by multiplying a number or variable by itself. [4]	akihtāsowina ohci kakicihkātik niswaw
----------------	--	---

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 mâwawôkimih
-----	--	-------------------



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



[10]

T

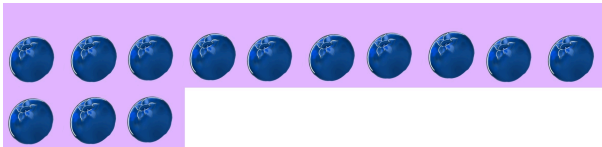



Table (data, information)	A systematic or orderly list of values, usually presented in rows and columns. [1]	weyascikewnahtik																		
<table><tr><th>Student</th><th>Mass (kg)</th><th>Height (cm)</th></tr><tr><td>John</td><td>52</td><td>154</td></tr><tr><td>Ann</td><td>48</td><td>150</td></tr>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

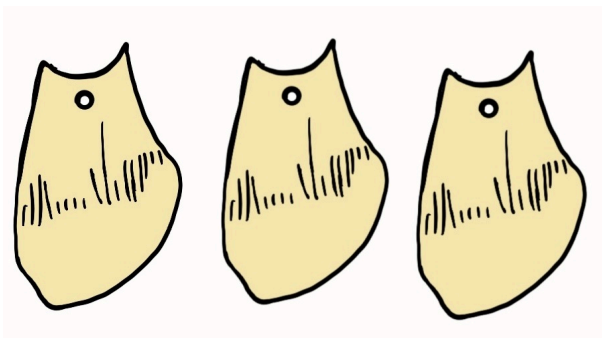
Tenth	10th	mwecimitātaht
-------	------	---------------

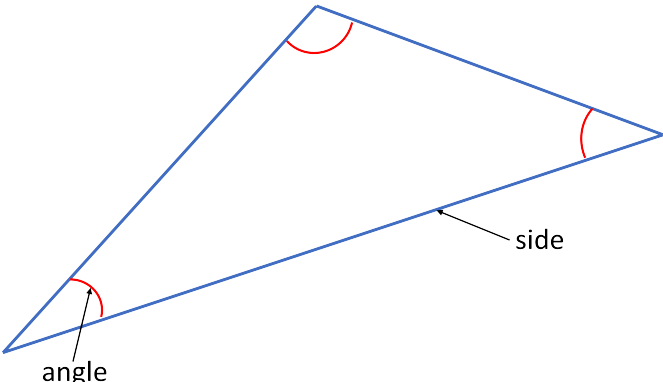
Third	3rd	mwecinistwâw
-------	-----	--------------

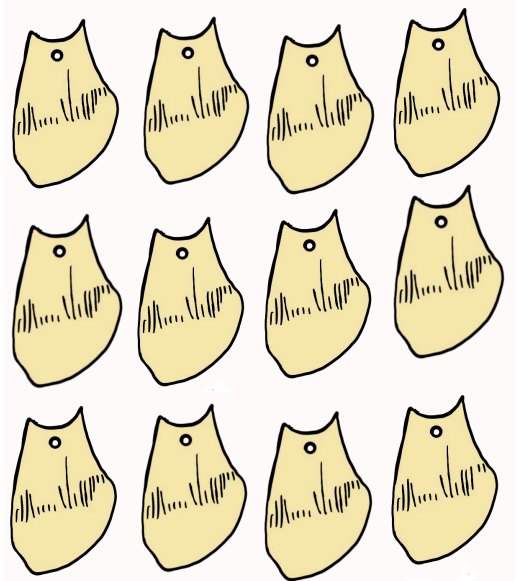
Thirteen	13	nistosâp
		

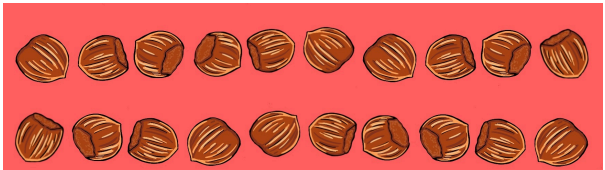
Thirty	30	nistomitanaw
		

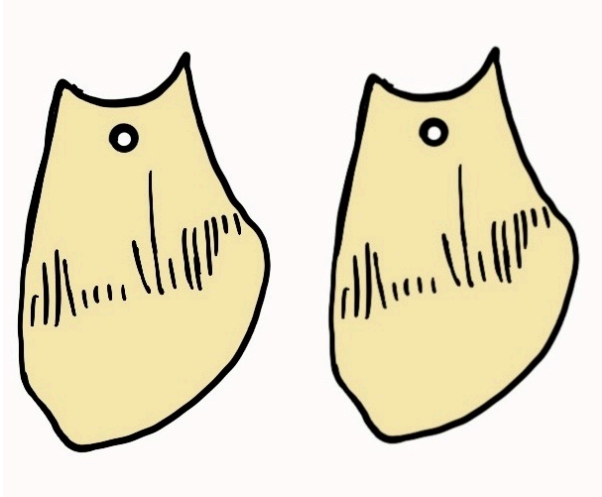
Thousand	1000	kihchi mitatahtomitanaw
----------	------	----------------------------

Three	3	nisto
		

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

Twelve	12	n̄isosāp
		

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
----------	--	-----------------

A 3D diagram of a triangular prism. The prism is oriented with one triangular face at the top and another at the bottom. The top face is light green with a wavy pattern, while the side faces are a darker green with a pattern of trees and leaves. Four vertices are identified with red arrows and the word 'Vertex' in red text: the top-left vertex, the top-right vertex, the bottom-left vertex, and the bottom-right vertex.

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

- [1] Kindergarten to Grade 8 mathematics glossary: support document for teachers, Manitoba Education, Citizenship and Youth
School Programs Division, Winnipeg, Manitoba, Canada, 79 pages, 2009, obtained from: http://www.edu.gov.mb.ca/k12/cur/math/glossary_k-8/document.pdf
- [2] Mathematics Glossary – Middle Years, Maxine Stinka, Saskatchewan Education, Curriculum and Instruction, Math Central, obtained from: <http://mathcentral.uregina.ca/RR/glossary/middle/glossaryab.html>
- [3] The Ontario Curriculum, Grades 1-8, Mathematics, Ministry of Education, 135 pages, 2005, obtained from: <http://www.edu.gov.on.ca/eng/curriculum/elementary/math18curr.pdf>
- [4] Visual Mathematical Dictionary, K-12, obtained from: <http://www.mathematicsdictionary.com/math-vocabulary.htm>
- [5] Toronto District School Board, obtained from: <http://schools.tdsb.on.ca/asit/standards/btstuff/MathD45.pdf>
- [6] Meanings and Definitions of Words, obtained from: <http://www.dictionary.com/>
- [7] Online Cree Dictionary, obtained from: <http://www.creedictionary.com/>
- [8] Math Goodies, obtained from: <http://www.mathgoodies.com/glossary>
- [9] The Aboriginal languages of First Nations people, Métis and Inuit, obtained from: <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016022/98-200-x2016022-eng.cfm>
- [10] Historical pictograph exhibit tells story of Treaty 4 signing, Regina Leader-Post, obtained from: <https://leaderpost.com/news/local-news/historical-pictograph-exhibit-tells-story-of-treaty-4-signing>
- [11] First Nations People, Métis and Inuit in Canada: Diverse and Growing Populations, obtained from: <https://www150.statcan.gc.ca/n1/pub/89-659-x/89-659-x2018001-eng.htm>