

Secondary 1

Vocabulary Cards and Word Walls

Revised: March 16, 2012

Important Notes for Teachers:

- The vocabulary cards in this file match the Common Core, the math curriculum adopted by the Utah State Board of Education, August 2010.
- The cards are arranged alphabetically.
- Each card has three sections.
 - Section 1 is only the word. This is to be used as a visual aid in spelling and pronunciation. It is also used when students are writing their own “kid-friendly” definition and drawing their own graphic.
 - Section 2 has the word and a graphic. This graphic is available to be used as a model by the teacher.
 - Section 3 has the word, a graphic, and a definition. This is to be used for the Word Wall in the classroom. For more information on using a Word Wall for Daily Review – see “Vocabulary – Word Wall Ideas” on this website.
- These cards are designed to help all students with math content vocabulary, including ELL, Gifted and Talented, Special Education, and Regular Education students.

For possible additions or corrections to the vocabulary cards, please contact the Granite School District Math Department at 385-646-4239.

Bibliography of Definition Sources:

Algebra to Go, Great Source, 2000. ISBN 0-669-46151-8

Math on Call, Great Source, 2004. ISBN-13: 978-0-669-50819-2

Math at Hand, Great Source, 1999. ISBN 0-669-46922

Math to Know, Great Source, 2000. ISBN 0-669-47153-4

Illustrated Dictionary of Math, Usborne Publishing Ltd., 2003. ISBN 0-7945-0662-3

Math Dictionary, Eula Ewing Monroe, Boyds Mills Press, 2006. ISBN-13: 978-1-59078-413-6

Student Reference Books, Everyday Mathematics, 2007.

Houghton-Mifflin eGlossary, <http://www.eduplace.com>

Interactive Math Dictionary, <http://www.amathsdictionaryforkids.com/>

absolute value equation

absolute value
equation

$$|3x - 7| = 23$$

absolute
value
equation

$$|3x - 7| = 23$$

An equation with a
variable within an
absolute value symbol.

absolute value inequality

absolute value
inequality

$$18 < |-2x + 6|$$

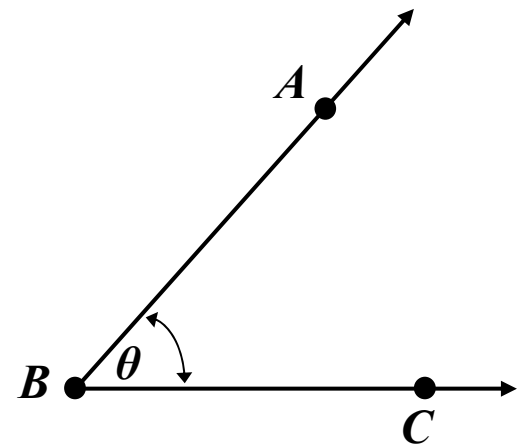
absolute
value
inequality

$$18 < |-2x + 6|$$

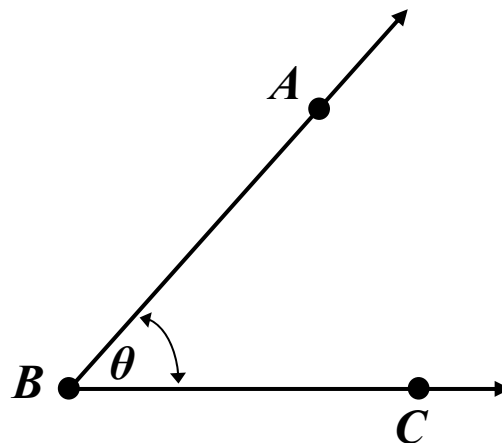
An inequality that has a
variable within an
absolute value symbol.

angle

angle



angle



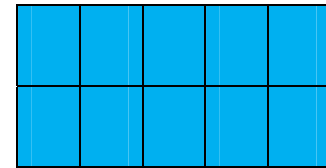
The union of two rays
that have the same
endpoint.

area

area

2 rows of 5 = 10 square units
or

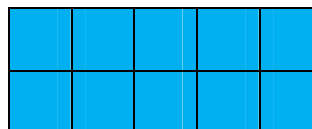
$2 \cdot 5 = 10$ square units



area

2 rows of 5 = 10 square units
or

$2 \cdot 5 = 10$ square units



The measure, in square units, of the interior region of a 2-dimensional figure or the surface of a 3-dimensional figure.

arithmetic sequence

arithmetic sequence

$$a_n = a_1 + (n - 1)d$$

The first term is a_1 , the common difference is d ,
and the number of terms is n .

Example: 3, 7, 11, 15, 19
 $a_1 = 3, d = 4, n = 5$

The explicit formula is
 $a_n = 3 + (n - 1) \cdot 4 = 4n - 1$

arithmetic sequence

$$a_n = a_1 + (n - 1)d$$

The first term is a_1 , the common
difference is d , and the number of
terms is n .

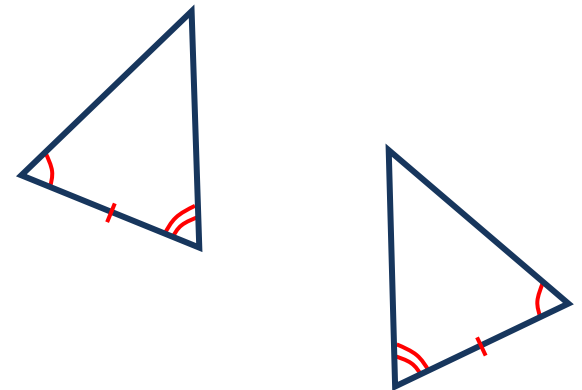
Example: 3, 7, 11, 15, 19
 $a_1 = 3, d = 4, n = 5$

The explicit formula is
 $a_n = 3 + (n - 1) \cdot 4 = 4n - 1$

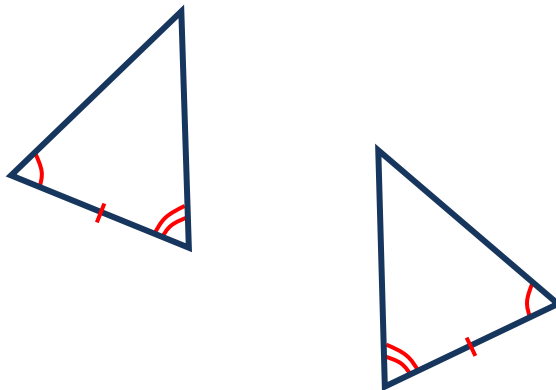
A sequence such as 1, 5, 9, 13,
17, 21 or 12, 7, 2, -3, -8, -13
which has a constant difference
between terms.

ASA

ASA



ASA



ASA (Angle-Side-Angle)

If two angles and the included side of one triangle are congruent to the corresponding angles and included side of another triangle, then the triangles are congruent.

association

association



The more food you eat, the more calories you ingest.

association

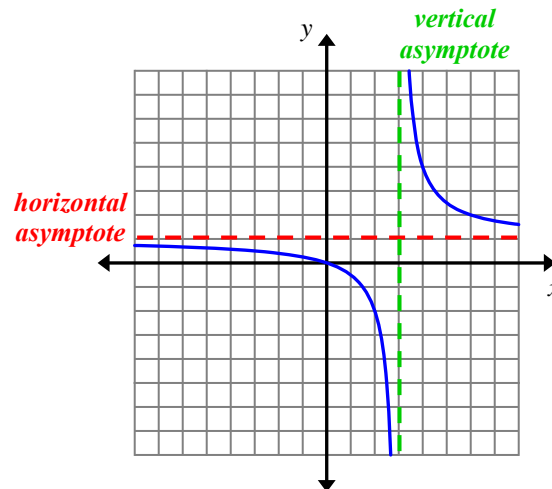
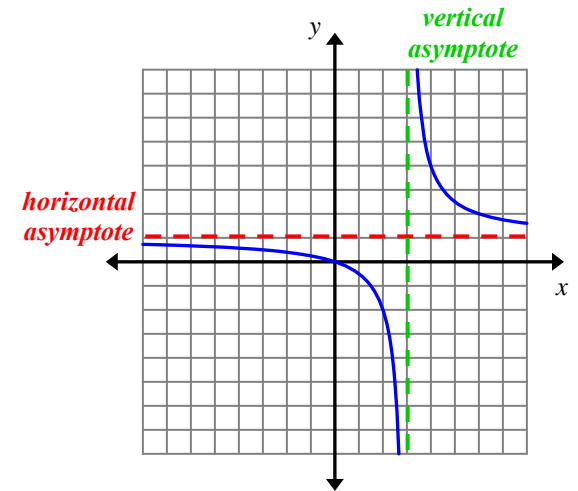


The more food you eat, the more calories you ingest.

Any relationship between two measured quantities that renders them statistically dependent. The term “association” refers broadly to any such relationship, whereas the “correlation” refers to a linear relationship between two quantities.

asymptote

asymptote

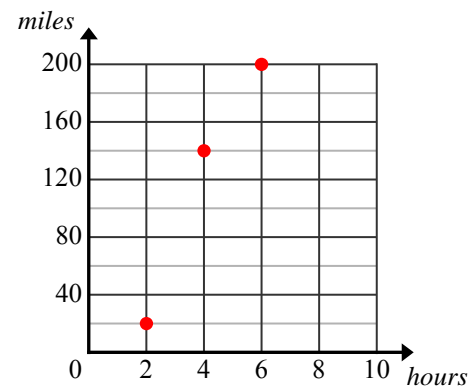


asymptote

A line that the graph of a function gets closer to as x or y gets larger in absolute value.

average rate of change

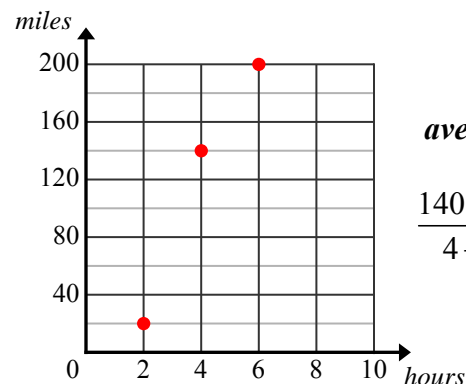
average rate
of change



average rate of change

$$\frac{140 - 20}{4 - 2} = \frac{120}{2} = 60 \text{ mph}$$

average rate
of change



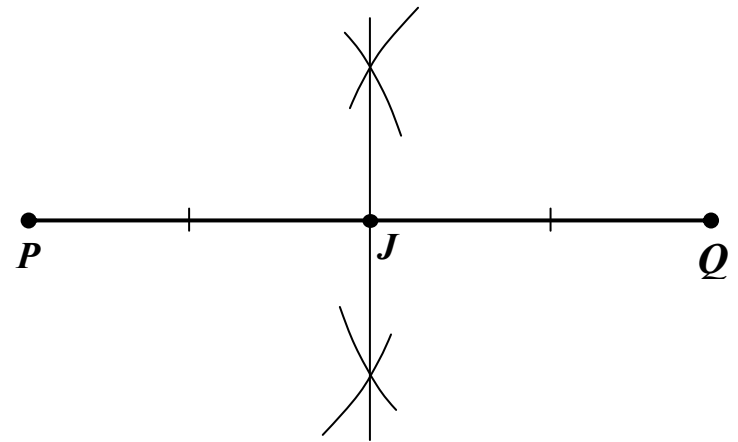
average rate of change

$$\frac{140 - 20}{4 - 2} = \frac{120}{2} = 60 \text{ mph}$$

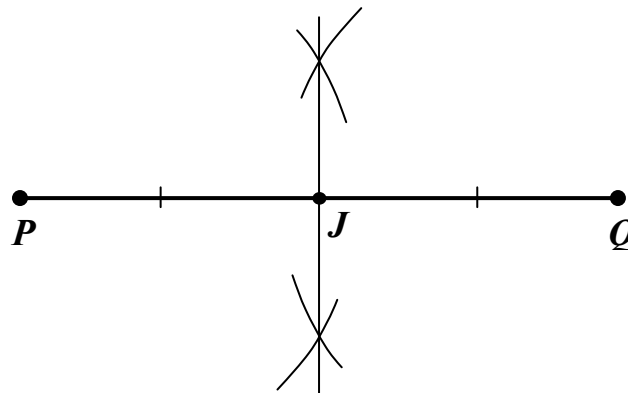
The average rate of change of a function between any two points is the slope of the line connecting those two points.

bisect

bisect



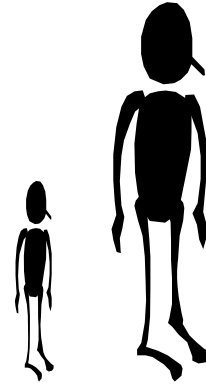
bisect



Divide into two equal parts.

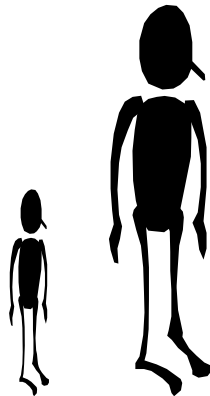
bivariate data

bivariate
data



<i>Height (inches)</i>	<i>Weight (pounds)</i>
67	155
72	220
77	240
74	195
69	175

bivariate
data

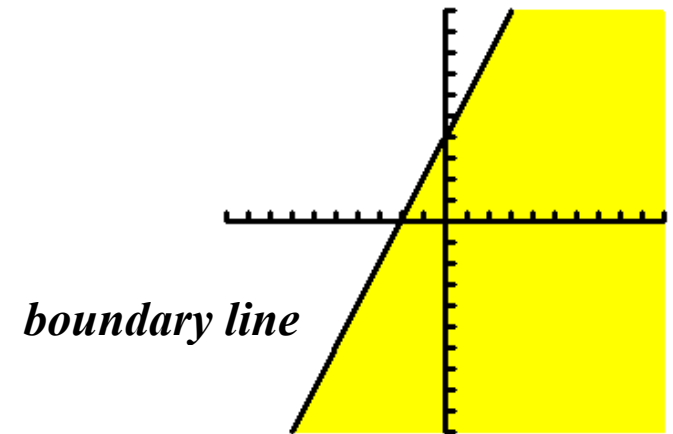


<i>Height (inches)</i>	<i>Weight (pounds)</i>
67	155
72	220
77	240
74	195
69	175

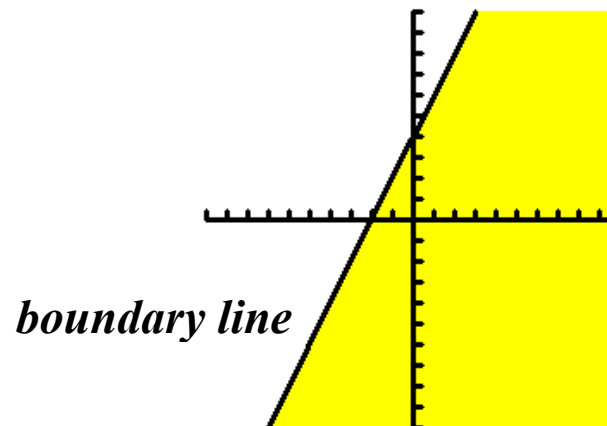
A set of data that
show the relationship
between two
variables.

boundary line

boundary
line



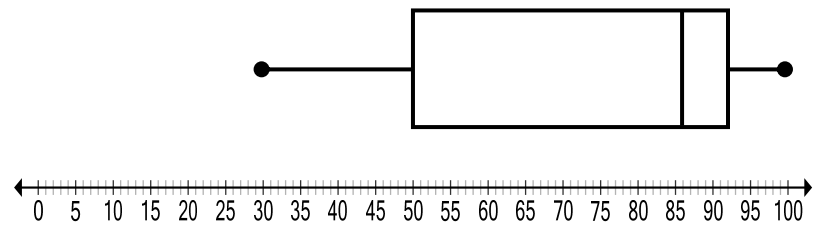
boundary
line



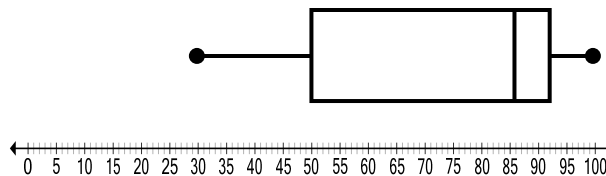
The line that divides a plane into two half-planes, e.g., when graphing the inequality $y \leq 2x + 4$ the boundary line is the graph $y = 2x + 4$. The boundary line may or may not be part of the solution to an inequality.

box plot

box plot



box plot

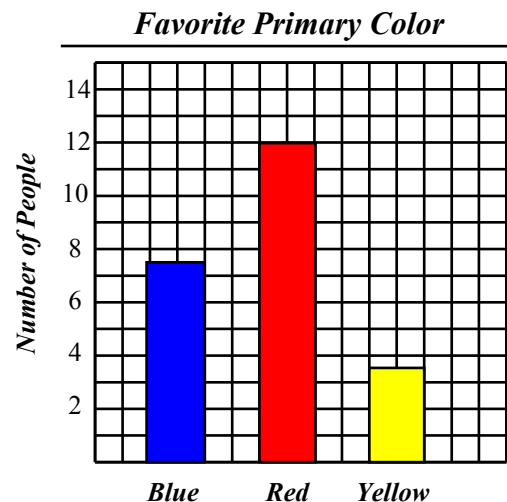
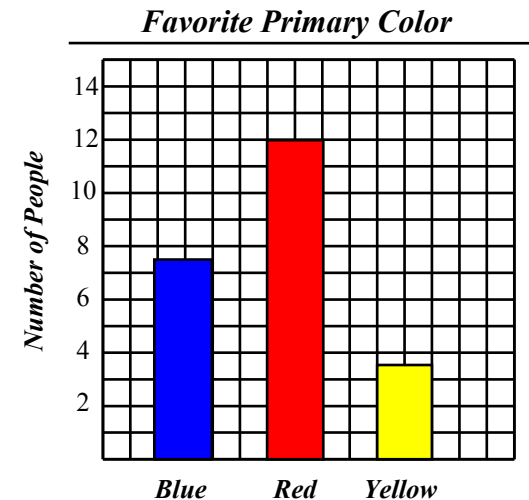


A diagram that shows the five number summary of a distribution. (Five number summary includes lowest value, lower quartile, median, upper quartile, and highest value.)

categorical (qualitative) data

categorical
(qualitative)
data

categorical
(qualitative)
data



Data where the values of the variables are merely the names of discrete, independent categories. The categories can be given numerical codes, but they cannot be ranked, added, multiplied or measured against each other.

causation

causation

Ulcers are caused by stress and spicy food.

There is a *correlation* between the independent variables (stress/spicy food) and the dependent variable (ulcers) but the independent variables were **NOT** the cause. We know that ulcers are caused by a corkscrew-shaped bacterium *Helicobacter pylori* (*H. pylori*).

causation

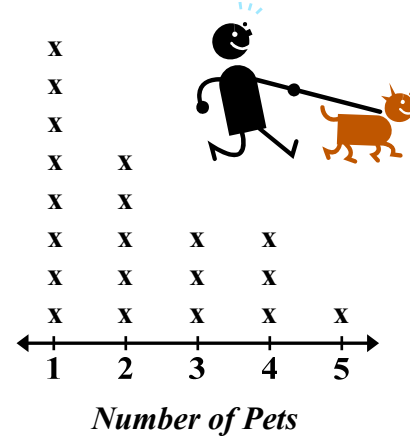
Ulcers are caused by stress and spicy food.

There is a *correlation* between the independent variables (stress/spicy food) and the dependent variable (ulcers) but the independent variables were **NOT** the cause. We know that ulcers are caused by a corkscrew-shaped bacterium *Helicobacter pylori* (*H. pylori*).

The relationship between cause and effect. This occurs only when the relationship between the two variables can be proven through a scientific experiment following strict guidelines. Only in this way can we rule out other factors that may affect the relationship that we see in the observed values.

center

center



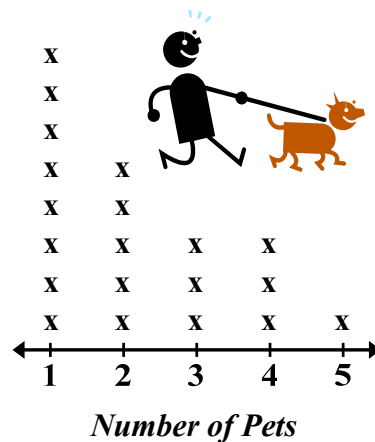
Examples:

Mode = 1

Median = 2

Mean = 2.3

center



Examples:

Mode = 1

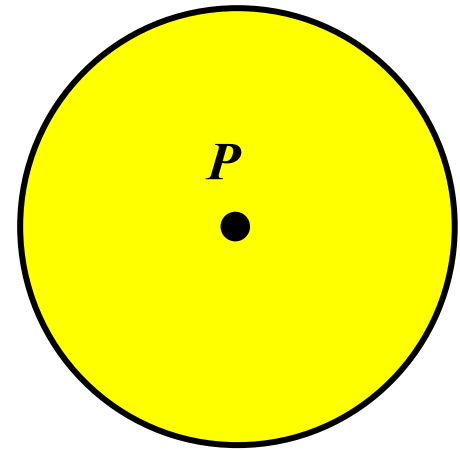
Median = 2

Mean = 2.3

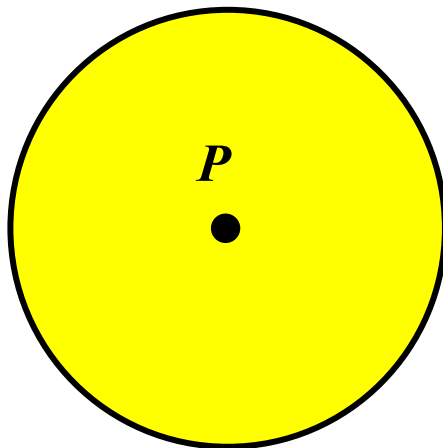
An average; a single value that is used to represent a collection of data. Three commonly used types of averages are mode, median, and mean. (Also called measures of central tendency or measures of average.)

circle

circle



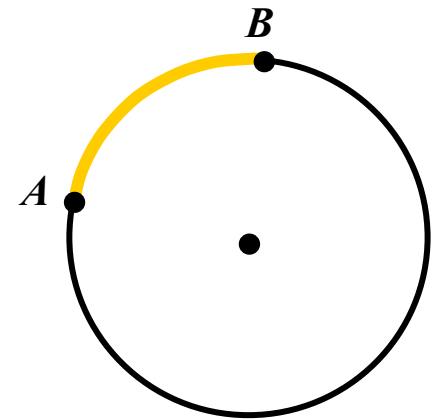
circle



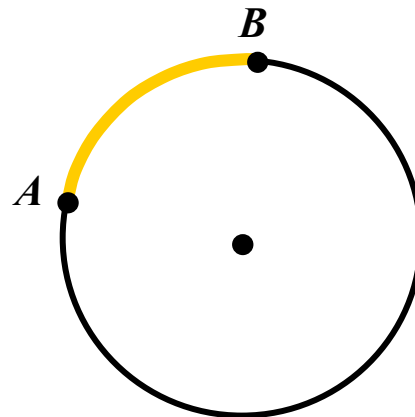
A plane figure with all points the same distance from a fixed point called a center.

circular arc

circular
arc



circular
arc



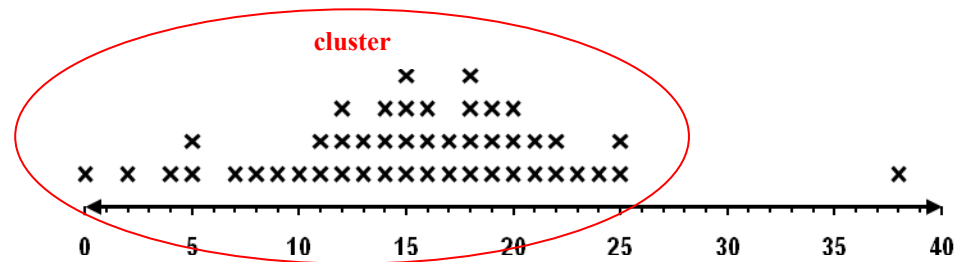
A segment of the
circumference of a
circle.

cluster



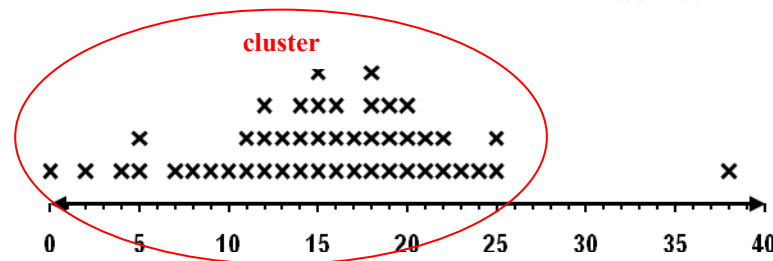
cluster

Hours Watching TV In One Week



cluster

Hours Watching TV In One Week



A group of the same or similar elements gathered or occurring closely together on a graph.

coefficient

coefficient

$5x$
coefficient

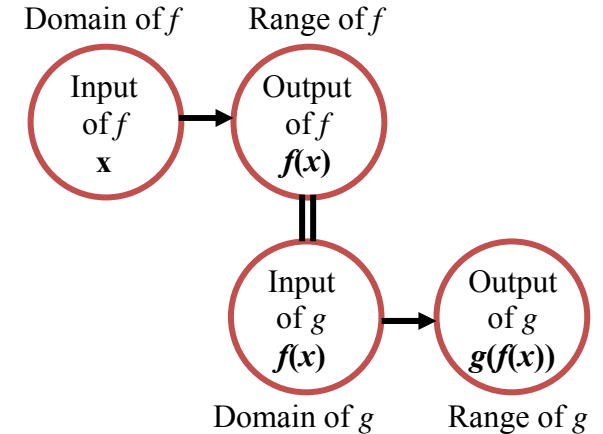
coefficient

$5x$
coefficient

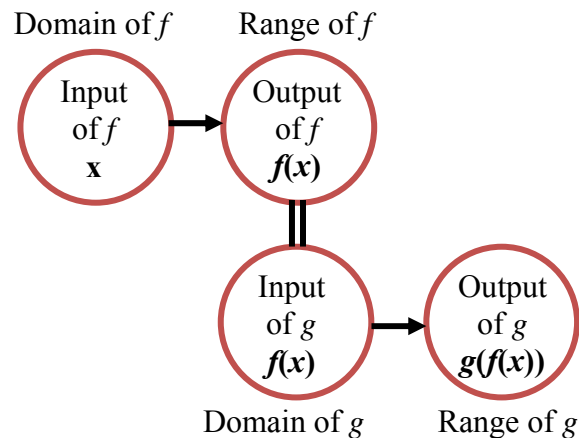
A numerical factor in a
term of an algebraic
expression.

composition of functions

composition of functions



composition of functions



The output from the first function becomes the input for the second function. Usually written as $f(g(x))$ or $(f \circ g)(x)$.

compound inequality

**compound
inequality**

$$-1 < x \text{ and } x \leq 3$$

$$x < -1 \text{ or } x \geq 3$$

**compound
inequality**

$$-1 < x \text{ and } x \leq 3$$

$$x < -1 \text{ or } x \geq 3$$

A mathematical sentence
with two inequality
statements joined by
“and” or “or”.

conditional relative frequency

conditional
relative
frequency

	Dance	Sports	Movies	TOTAL
Women	0.32	0.12	0.16	0.60
Men	0.04	0.20	0.16	0.40
TOTAL	0.36	0.32	0.32	1.00

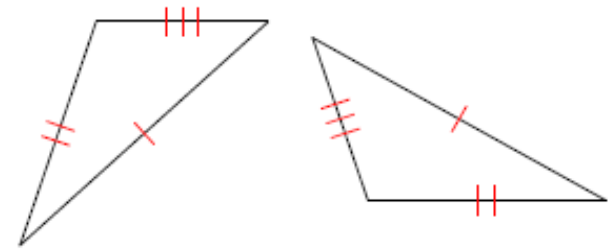
conditional
relative
frequency

	Dance	Sports	Movies	TOTAL
Women	0.32	0.12	0.16	0.60
Men	0.04	0.20	0.16	0.40
TOTAL	0.36	0.32	0.32	1.00

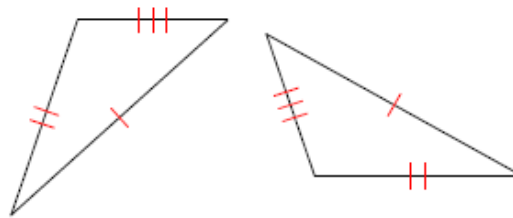
The relative frequencies in the body of the table are called *conditional frequencies* or the *conditional distribution*.

congruent

congruent



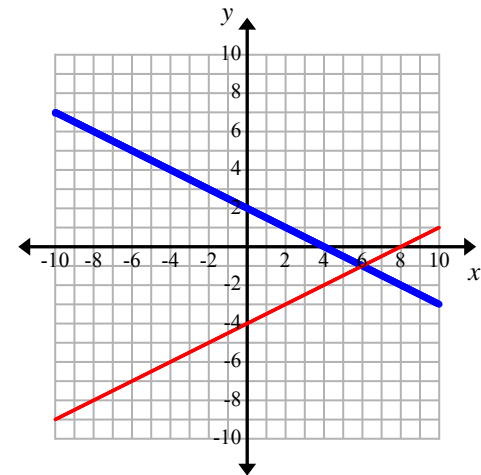
congruent



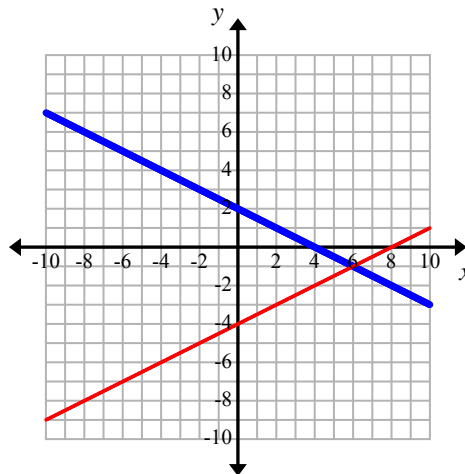
Two figures are
congruent if they have
the same shape and size.

consistent system

**consistent
system**



**consistent
system**



A system that has at least
one solution

constant percent rate

constant
percent rate



3.94%
fixed mortgage rate

constant
percent rate

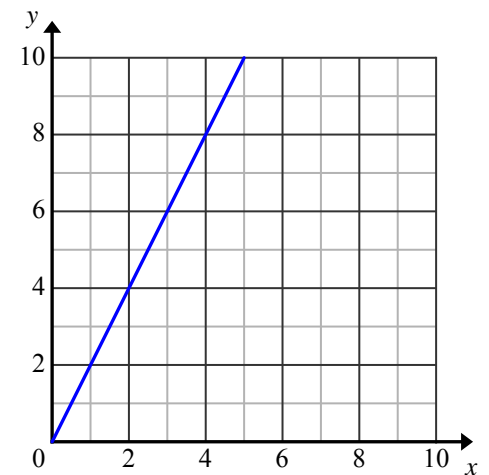


3.94%
fixed mortgage rate

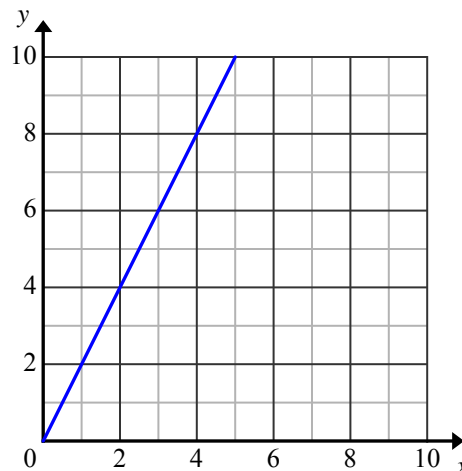
A percentage rate
without any variation in
the rate of increase or
decrease.

constant rate of change

constant rate
of change



constant
rate
of change



In linear relationships the constant rate of change is illustrated as the slope of the graph of the equation.

This is so because the change in y divided by the change in x is constant for any two points on the line.

constant term

constant
term

$$5x + 4$$

constant



constant
term

$$5x + 4$$

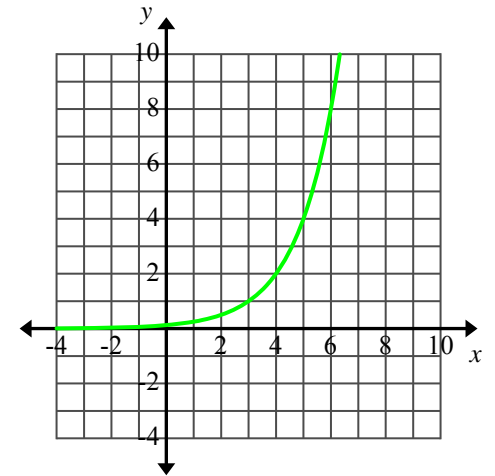
constant



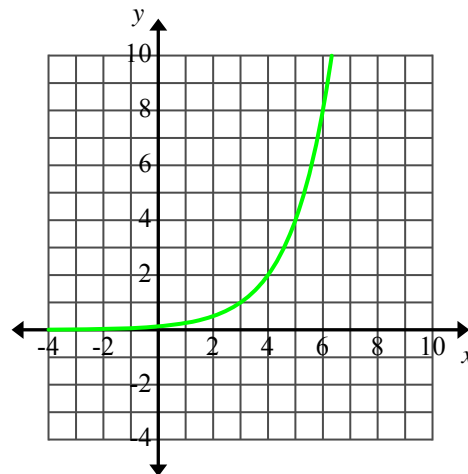
A term whose value
does not change.

continuous line or curve

continuous
line or curve



continuous
line or curve



A line or curve that
extends without a break
or irregularity.

coordinates

coordinates

(3, -5)
(x , y)

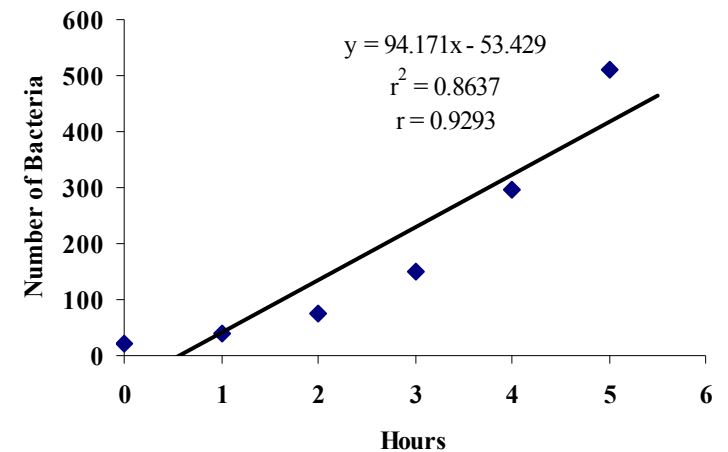
coordinates

(3, -5)
(x , y)

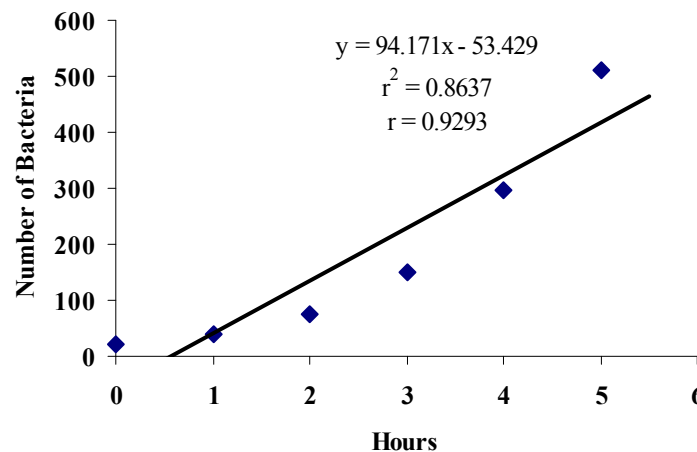
An ordered pair of numbers that identify a point on a coordinate plane.

correlation coefficient

correlation
coefficient



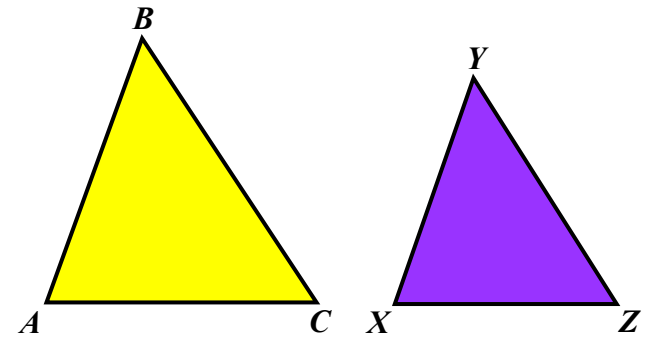
correlation
coefficient



A value that shows the strength of the linear relationship between two variables.

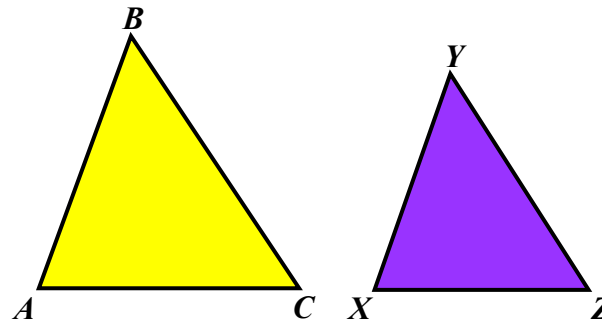
corresponding side

corresponding
side



\overline{AB} and \overline{XY} are corresponding sides

corresponding
side



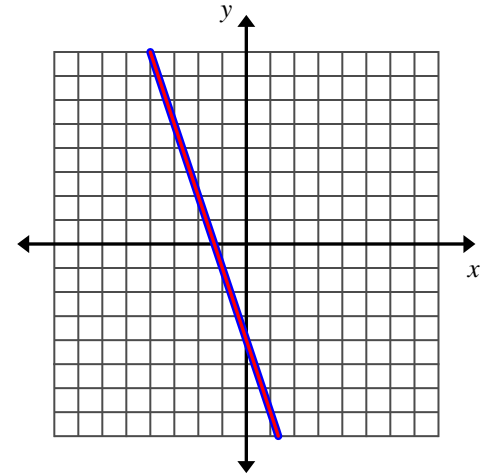
\overline{AB} and \overline{XY} are
corresponding sides

If the relative
position of two
sides is the same in
two figures, then
they are called
corresponding sides.

dependent system

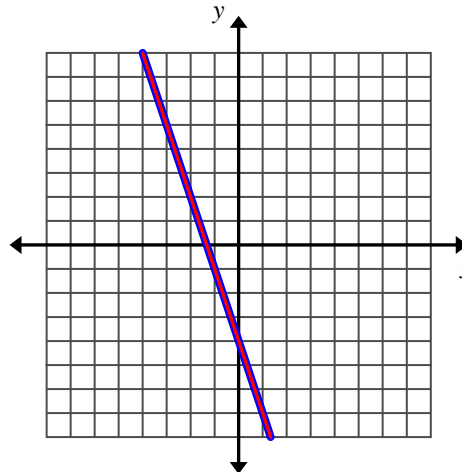
**dependent
system**

$$\begin{aligned}3x + y &= -4 \\ -6x - 2y &= 8\end{aligned}$$



**dependent
system**

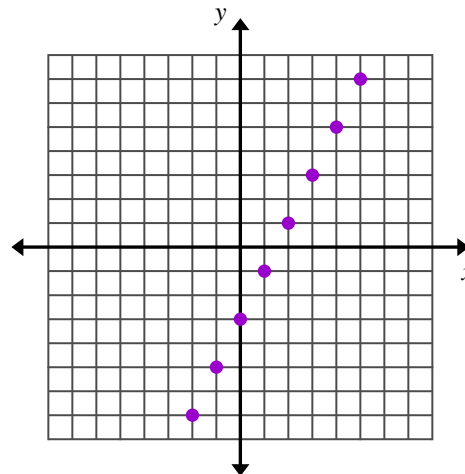
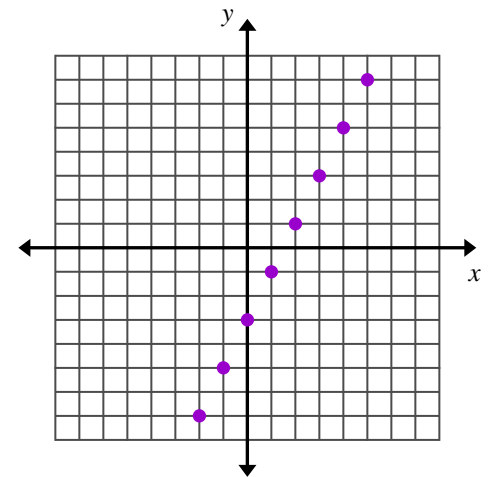
$$\begin{aligned}3x + y &= -4 \\ -6x - 2y &= 8\end{aligned}$$



A second version of the same equation, whose graphs coincide with each other.

discrete

discrete



discrete

A type of data is discrete if there are only a finite number of values possible or if there is a space on the number line between each 2 possible values.

distance formula

distance
formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

distance
formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

The formula used to
find the distance
between two points
in the xy -plane.

domain

domain

$\{(2, -3), (4, 6), (3, -1), (7, 6), (6, 3)\}$

domain: $\{2, 3, 4, 6, 7\}$

domain

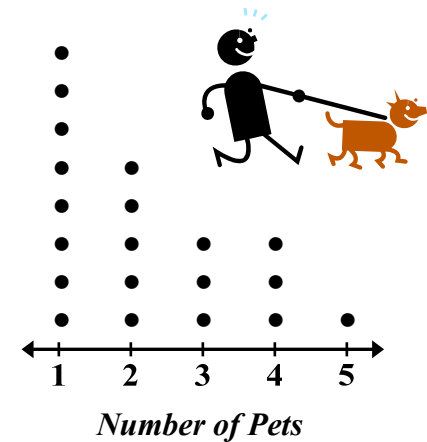
$\{(2, -3), (4, 6), (3, -1), (7, 6), (6, 3)\}$

domain: $\{2, 3, 4, 6, 7\}$

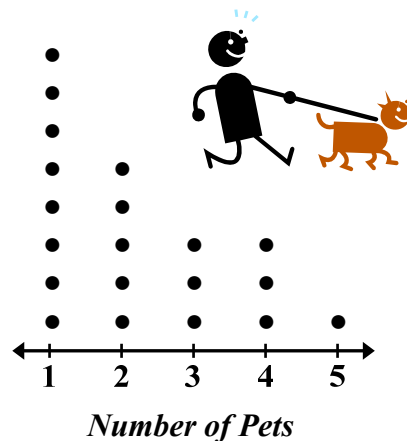
The set of “input”
values for which a
function is defined.

dot plot

dot plot



dot plot



Also known as a line plot. A diagram showing frequency of data on a number line.

elimination

elimination

$$2x + y = 1$$

$$\underline{3x - y = 19}$$

$$5x + 0 = 20 \quad \text{Add the equations to get } x = 4.$$

$$3(4) - y = 19 \quad \text{Substitute 4 for } x \text{ in the second equation.}$$

$$12 - y = 19$$

$$y = -7 \quad \text{Solve for } y.$$

elimination

$$2x + y = 1$$

$$\underline{3x - y = 19}$$

$$5x + 0 = 20 \quad \text{Add the equations to get } x = 4.$$

$$3(4) - y = 19 \quad \text{Substitute 4 for } x \text{ in the second equation.}$$

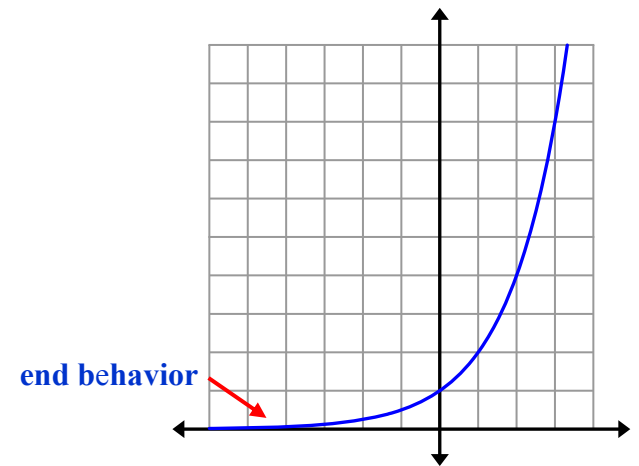
$$12 - y = 19$$

$$y = -7 \quad \text{Solve for } y.$$

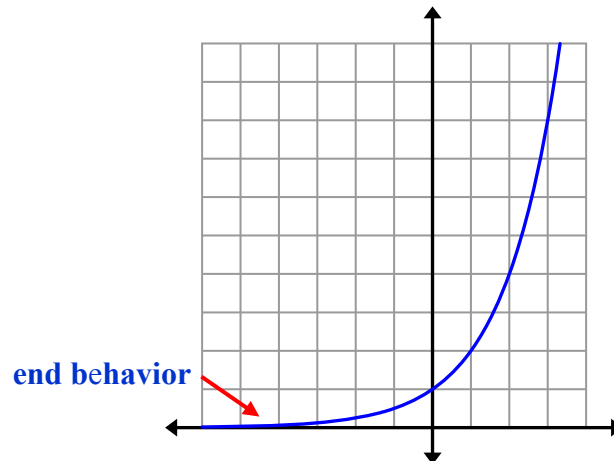
A method for solving a system of linear equations. You add or subtract the equations to eliminate a variable.

end behavior

end behavior



end behavior

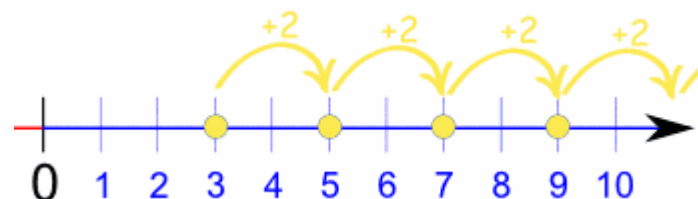


The appearance of a graph as it is followed farther and farther in either direction.

equal differences

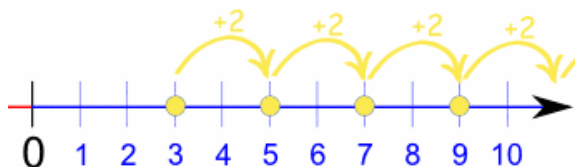
equal differences

The sequence $\{3, 5, 7, 9, 11, \dots\}$ is made by adding 2 each time, therefore it has a common or equal difference of 2.



equal differences

The sequence $\{3, 5, 7, 9, 11, \dots\}$ is made by adding 2 each time, as so has a common or equal difference of 2.



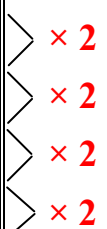
The common difference between each number in an arithmetic sequence.

equal factors

equal factors

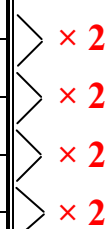
A population doubles every year, 2^n where two is the factor and n represents time in years.

<i>year</i>	<i>population</i>
1	2
2	4
3	8
4	16
5	32



A population doubles every year, 2^n where two is the factor and n represents time in years.

<i>year</i>	<i>population</i>
1	2
2	4
3	8
4	16
5	32



Repeated multiplication
by the same number or
factor.

equal factors

equation

equation

$$9x - 8 = 22 - x$$

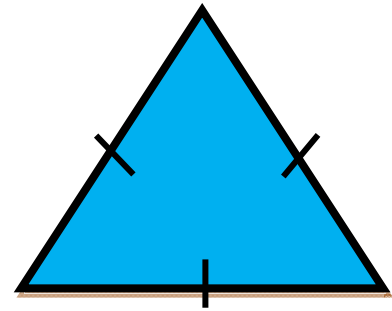
equation

$$9x - 8 = 22 - x$$

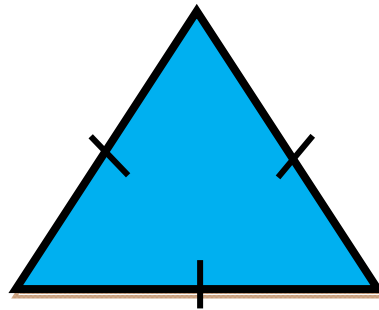
A statement that the values of two mathematical expressions are equal (indicated by the sign =).

equilateral triangle

equilateral triangle



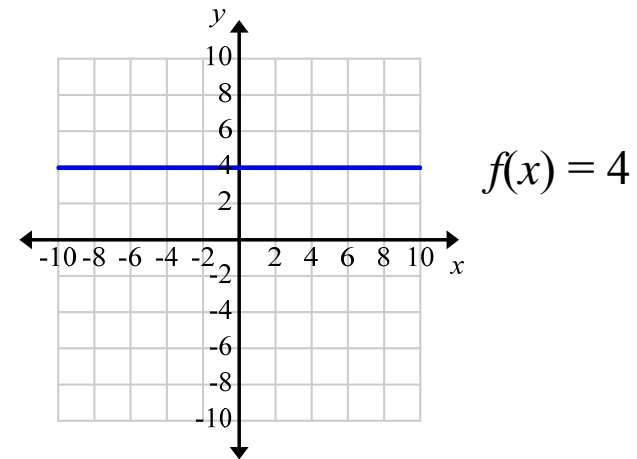
equilateral triangle



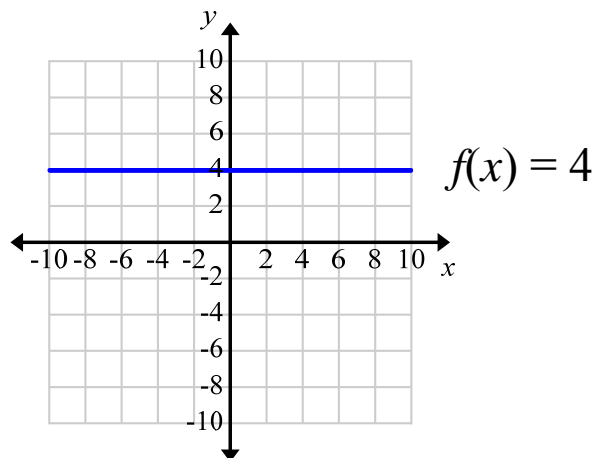
A triangle whose sides
are all the same length.

even function

even
function



even
function



A function is even if $f(x) = f(-x)$ for all x in the domain of the function. Geometrically, the graph of an even function is symmetric with respect to the y-axis. That means that the graph of the function remains unchanged after reflection about the y-axis.

exponential equation

exponential
equation

$$5^x = 125$$

exponential
equation

$$5^x = 125$$

An equation in which a
variable occurs in the
exponent.

explicit formula

explicit formula

Let $a_n = 2n + 5$ for
positive integers n .

If $n = 7$, then
 $a_7 = 2(7) + 5 = 19$.

explicit formula

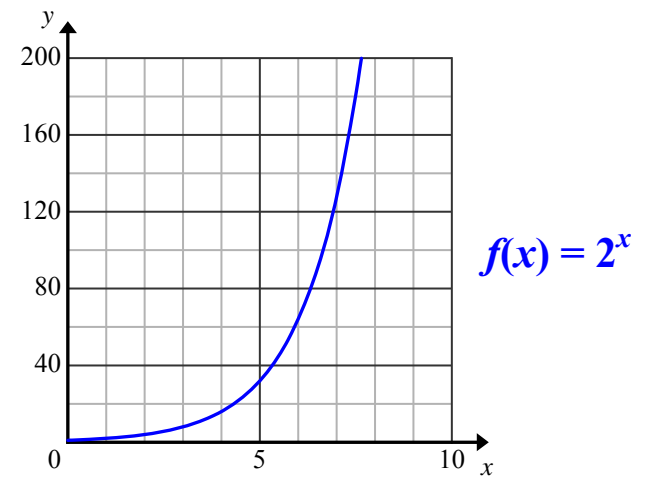
Let $a_n = 2n + 5$ for
positive integers n .

If $n = 7$, then
 $a_7 = 2(7) + 5 = 19$.

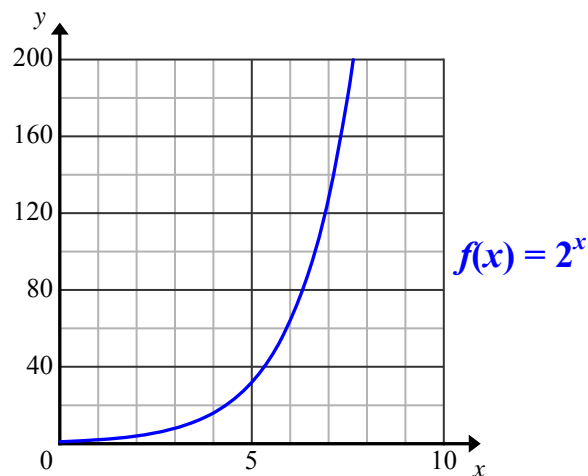
An explicit formula
expresses the n th term of
a sequence in terms of n .

exponential function

exponential
function



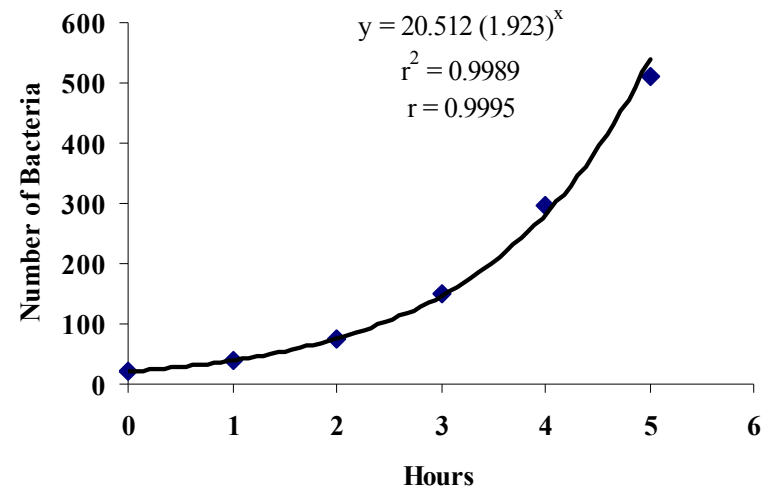
exponential
function



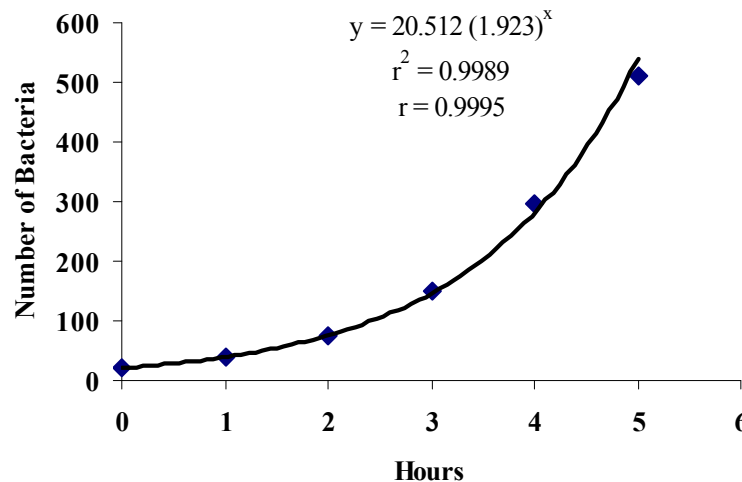
A function that repeatedly multiplies an initial amount by the same positive number. You can model all exponential functions by using $f(x) = ab^x$, where a is a nonzero constant, $b > 0$ and $b \neq 1$.

exponential regression model

exponential
regression
model



exponential
regression
model



A model that shows the relationship between two variables by fitting an exponential function to observed data.

expression

expression

$$5x + 3$$

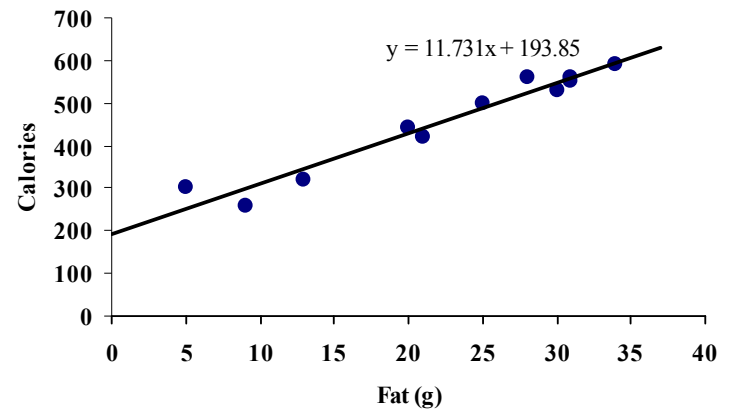
expression

$$5x + 3$$

A variable or combination of variables, numbers, and symbols that represents a mathematical relationship.

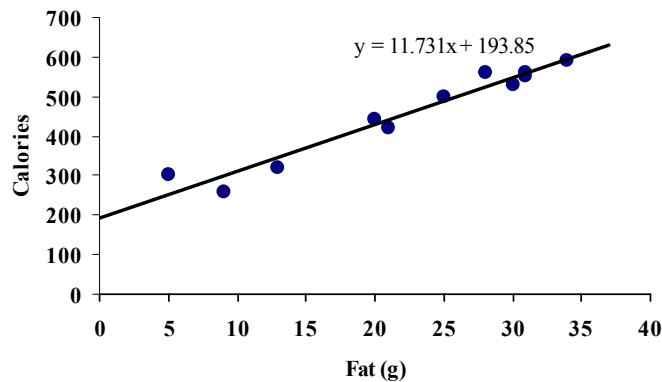
extrapolate

extrapolate



Using your regression equation, find the total calories based upon 40 grams of fat?

extrapolate

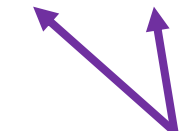


Using your regression equation, find the total calories based upon 40 grams of fat?

To *estimate* or infer a value or quantity beyond the known range of data.

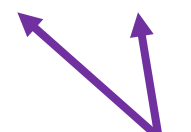
factor

factor

$$2 \cdot x = 2x$$


factors

factor

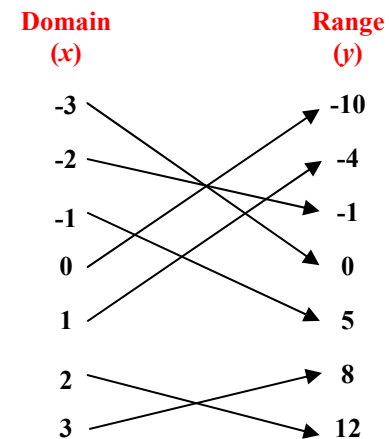
$$2 \cdot x = 2x$$


factors

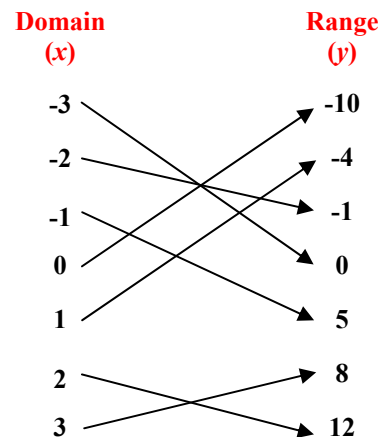
Any of the numbers or symbols in mathematics that when multiplied together form a product.

function

function



function



A relation that assigns exactly one value in the range to each value in the domain.

function notation

function
notation

$$f(x) = 3x - 8$$

function
notation

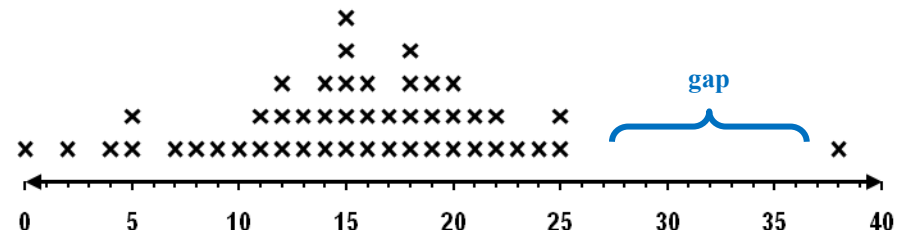
$$f(x) = 3x - 8$$

To write a rule in function notation, you use the symbol $f(x)$ in place of y .

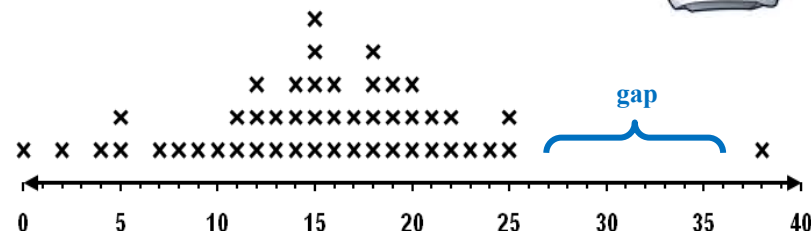
gap

gap

Hours Watching TV In One Week



Hours Watching TV In One Week



A place on a graph where no data values are present.

geometric sequence

geometric sequence

$$a_n = a_1 \cdot r^{n-1}$$

The first term is a_1 , the common ratio is r , and the number of terms is n .

Example: 2, 6, 18, 54, 162

$$a_1 = 2, r = 3, n = 5$$

The explicit formula is

$$a_n = 2 \cdot 3^{n-1}$$

geometric sequence

$$a_n = a_1 \cdot r^{n-1}$$

The first term is a_1 , the common ratio is r , and the number of terms is n .

Example: 2, 6, 18, 54, 162

$$a_1 = 2, r = 3, n = 5$$

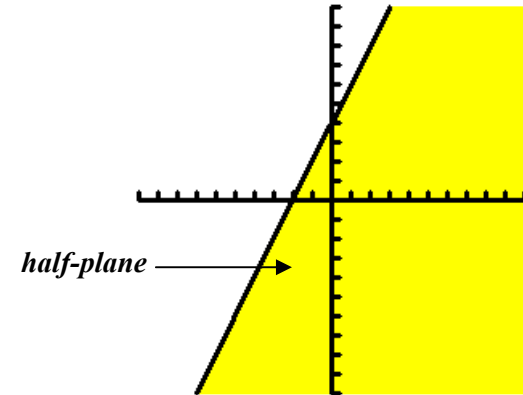
The explicit formula is

$$a_n = 2 \cdot 3^{n-1}$$

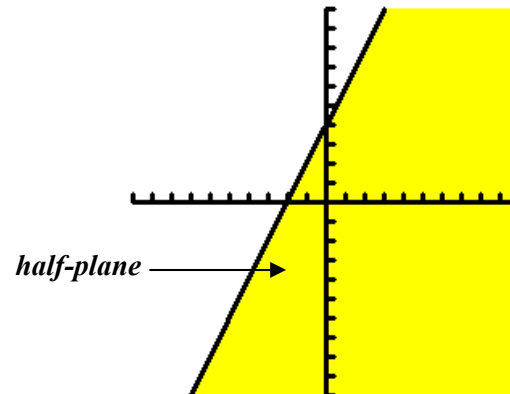
A sequence such as 2, 6, 18, 54, 162 or $3, 1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}$ which has a constant ratio between terms.

half-plane

half-plane



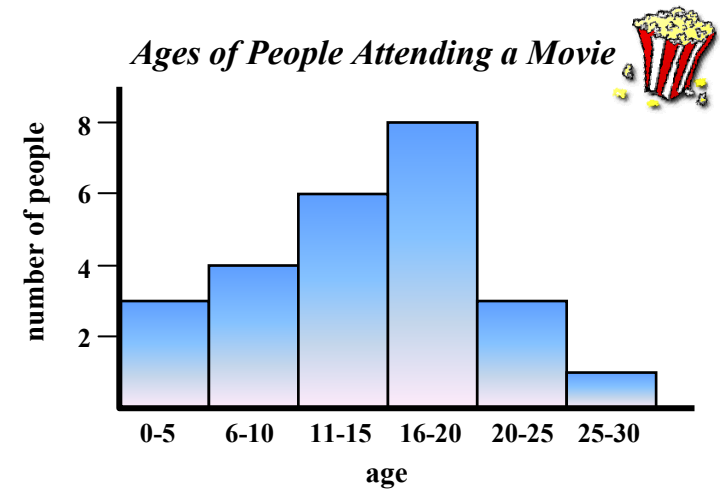
half-plane



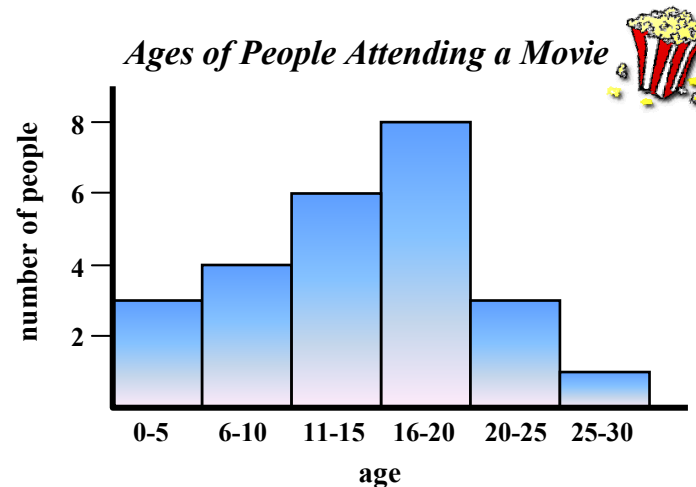
The portion of a plane lying on one side of some line in the plane. The graph of a linear inequality is always a half-plane.

histogram

histogram



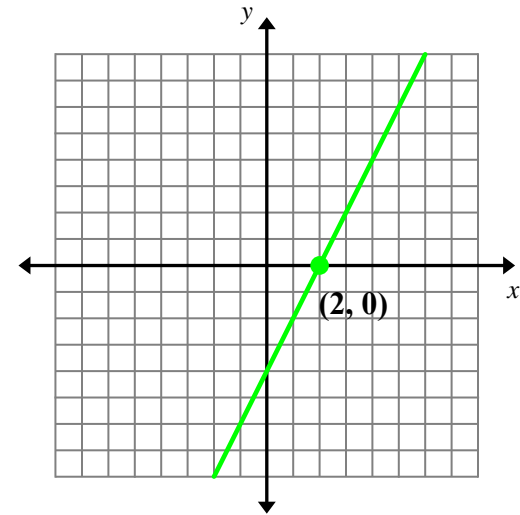
histogram



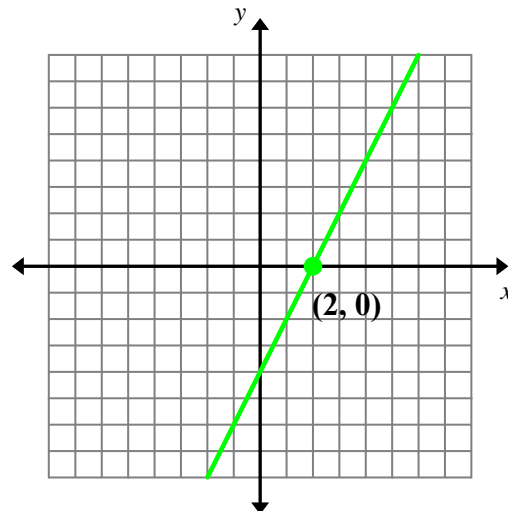
A bar graph in which the labels for the bars are numerical intervals.

horizontal intercept

horizontal
intercept



horizontal
intercept

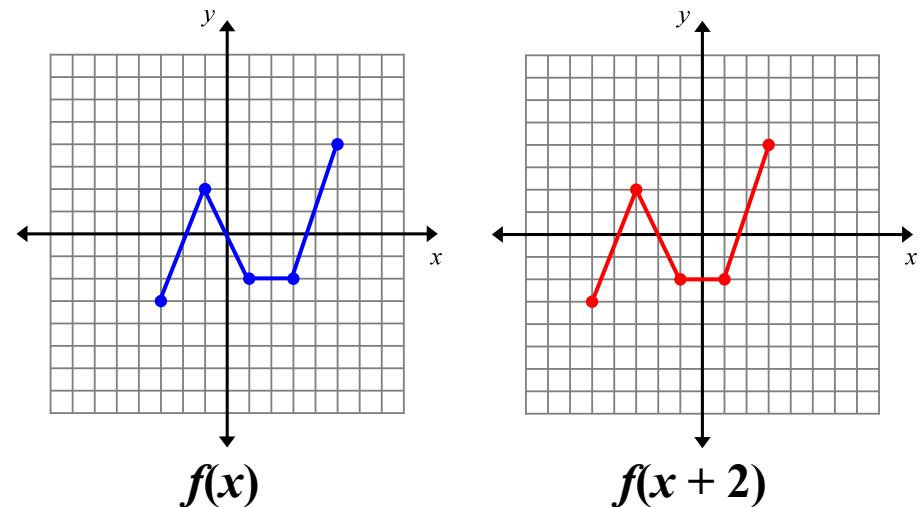


Also known as the x -intercept. It can be found by substituting “0” for the variable y in the equation $y = mx + b$.

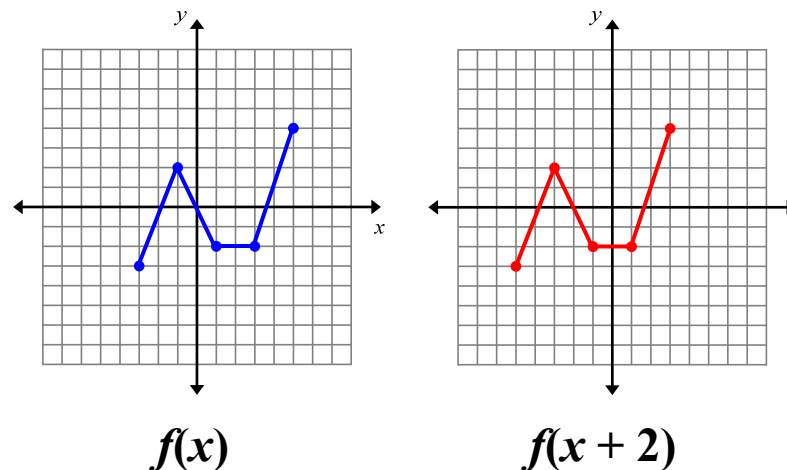
$$0 = m \cdot x + b$$

horizontal translation

horizontal translation



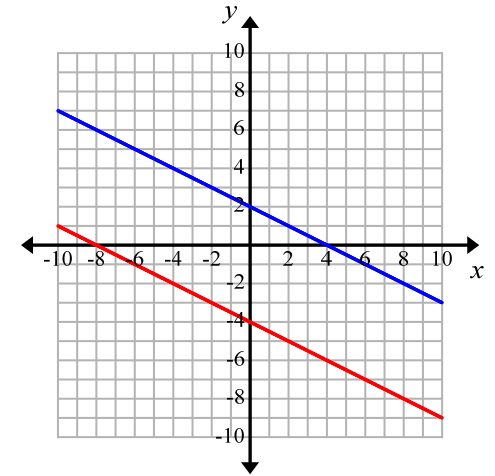
horizontal translation



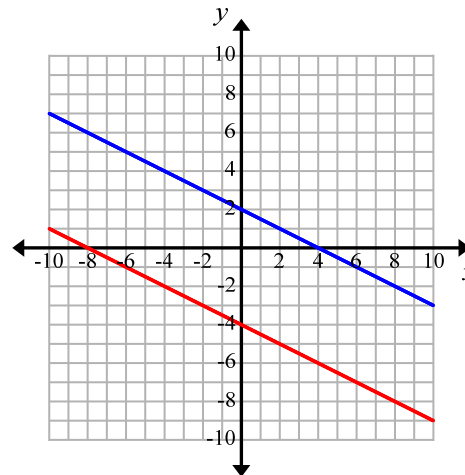
Horizontally translating a graph is equivalent to shifting the parent function left or right in the direction of the x -axis. A graph is translated k units horizontally by moving each point on the graph k units horizontally.

inconsistent system

inconsistent
system



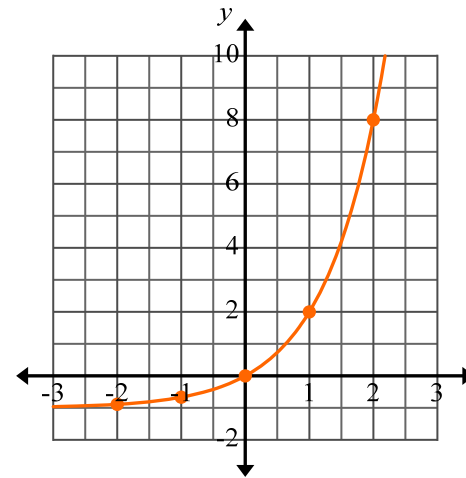
inconsistent
system



A system that has no
solution.

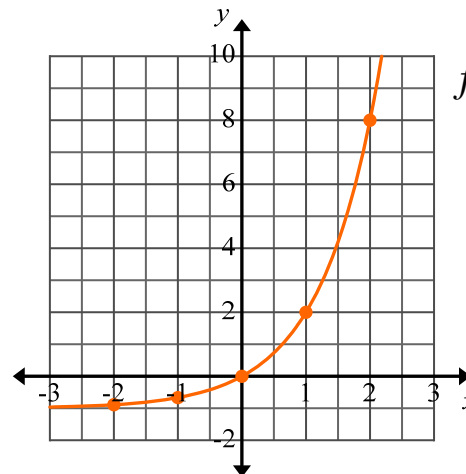
increasing exponentially

increasing exponentially



$$f(x) = 3^x - 1$$

increasing exponentially

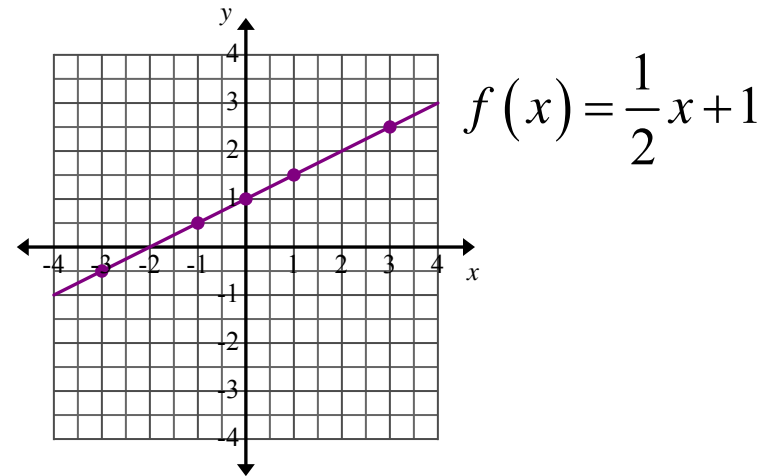


$$f(x) = 3^x - 1$$

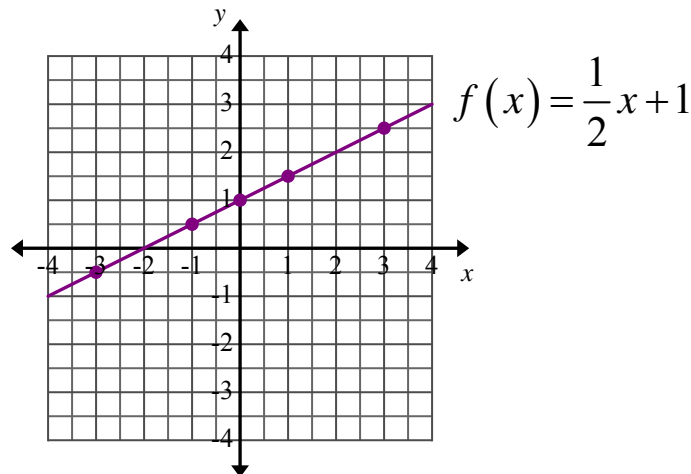
Something is said to *increase exponentially* if its rate of change is expressed using exponents. A graph of such a rate would appear not as a straight line, but as a curve that continually becomes steeper or shallower.

increasing linearly

increasing
linearly



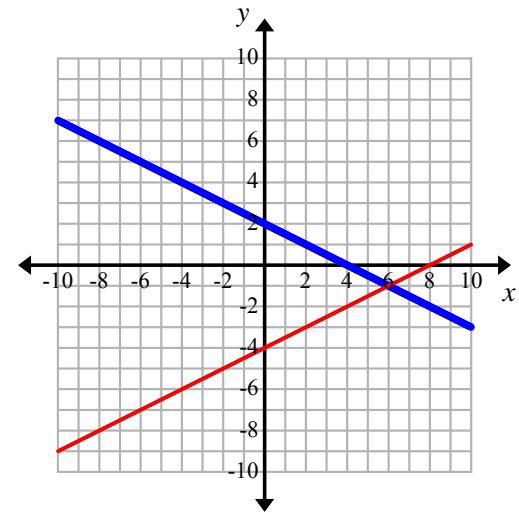
increasing
linearly



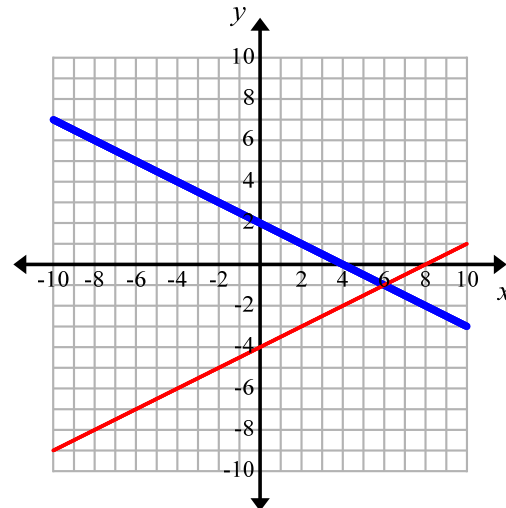
A function is said to increase linearly if its rate of change is constant. That is, the change in y divided by the change in x is constant for any two points on the function. The graph of such a function would appear as a straight line.

independent system

independent system



independent system



A system of linear equations that has a unique solution.

inequality

$$5x + 6 < 20 - 2x$$



inequality

$$5x + 6 < 20 - 2x$$

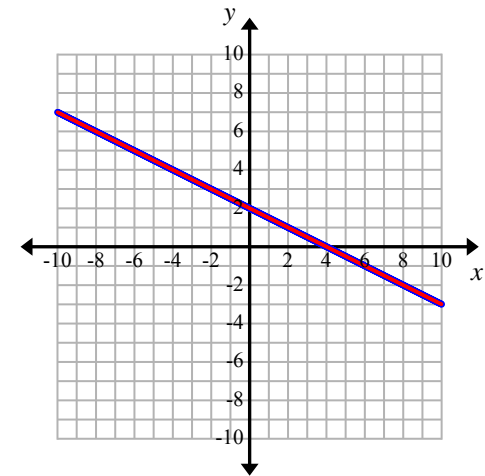


inequality

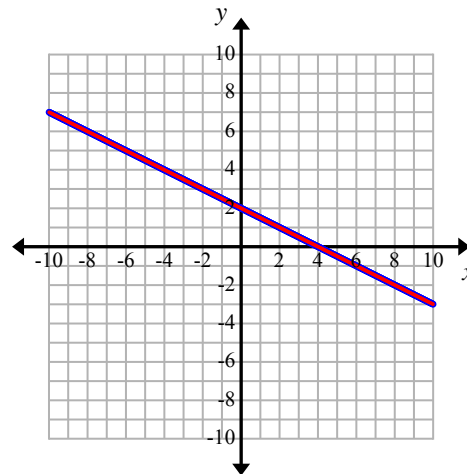
A mathematical sentence that compares two unequal expressions using one of the symbols $<$, $>$, \leq , \geq , or \neq .

infinitely many solutions

infinitely many
solution



infinitely many
solutions



A system of equations
that are dependent and
consistent.

input

input

$$f(x) = 2(x + 1) - 7$$

input: $x = 3$

$$\begin{aligned} f(3) &= 2(3 + 1) - 7 \\ &= 2(4) - 7 \\ &= 8 - 7 \\ &= 1 \end{aligned}$$

$$f(x) = 2(x + 1) - 7$$

input: $x = 3$

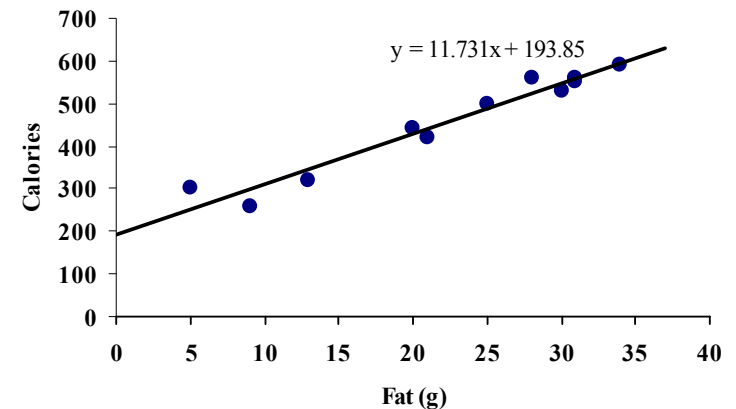
$$\begin{aligned} f(3) &= 2(3 + 1) - 7 \\ &= 2(4) - 7 \\ &= 8 - 7 \\ &= 1 \end{aligned}$$

input

A value of the
independent variable.

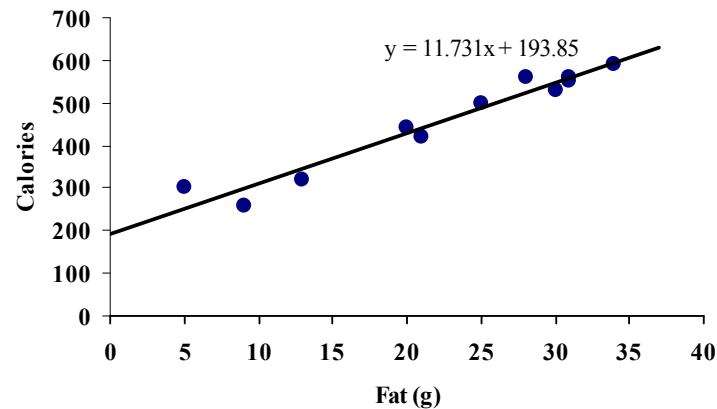
interpolate

interpolate



Using your regression equation, find the total calories based upon 26 grams of fat?

interpolate

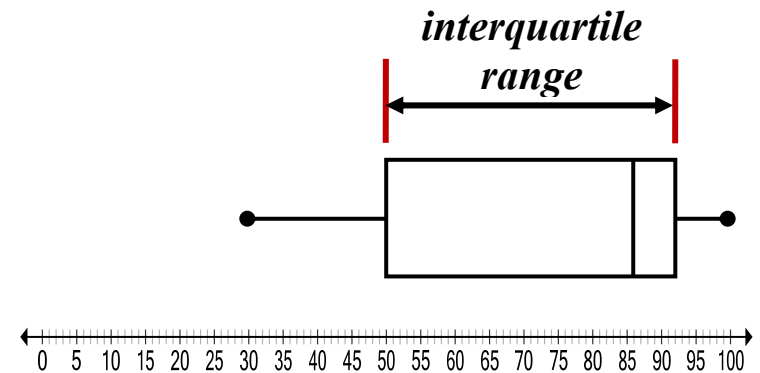


Using your regression equation, find the total calories based upon 26 grams of fat?

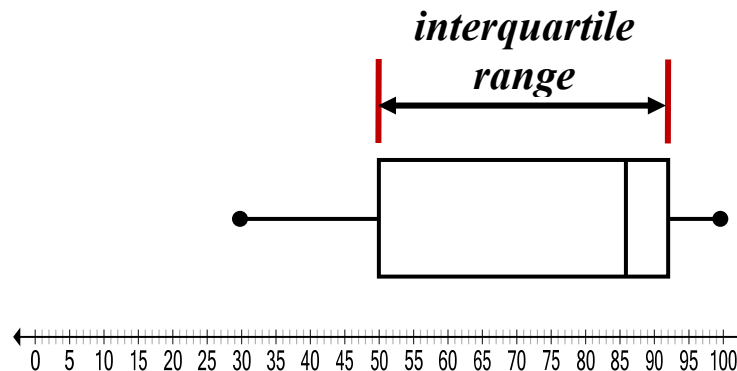
To *estimate* or infer a value or quantity that falls within the range of values plotted on the scatter plot.

interquartile range

interquartile
range



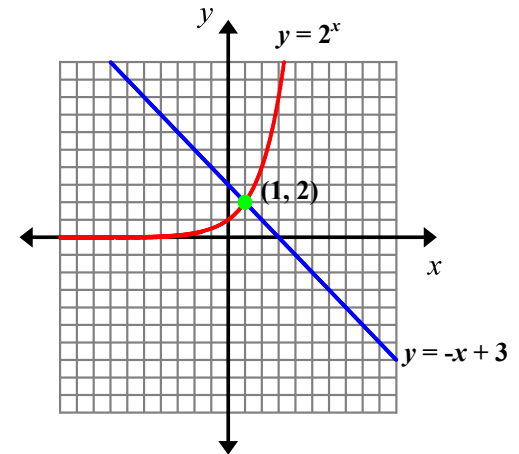
interquartile
range



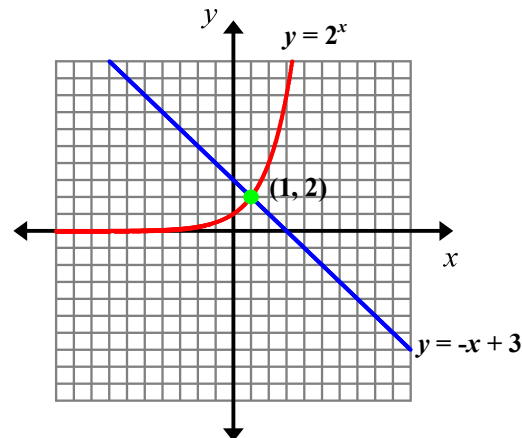
The difference
between the upper
quartile and the
lower quartile.

intersection

intersection



intersection



A point where two or more functions intersect.

interval

interval

- $0 \leq x \leq 1$ is an interval which contains 0 and 1, and all numbers between them
 - $(0, 1)$ is an open interval
 - $[0, 1]$ is a closed interval
-

interval

- $0 \leq x \leq 1$ is an interval which contains 0 and 1, and all numbers between them
- $(0, 1)$ is an open interval
- $[0, 1]$ is a closed interval

A set of real numbers with the property that any number that lies between two numbers in the set is also included in the set.

interval notation

interval
notation

For $-2 \leq x < 8$, the
interval notation is
 $[-2, 8)$.

interval
notation

For $-2 \leq x < 8$,
the interval
notation is
 $[-2, 8)$.

A notation for describing an interval on a number line. The interval's endpoint(s) are given, and a parenthesis or bracket is used to indicate whether each endpoint is included in the interval.

joint frequency

joint
frequency

	Dance	Sports	Movies	TOTAL
Women	16	6	8	30
Men	2	10	8	20
TOTAL	18	16	16	50

joint
frequency

	Dance	Sports	Movies	TOTAL
Women	16	6	8	30
Men	2	10	8	20
TOTAL	18	16	16	50

Entries in the body
of the table are
called *joint
frequencies*.

laws of exponents

laws of exponents

For all real numbers x and all integers m and n ,

$$x^m \cdot x^n = x^{m+n} \qquad \frac{x^m}{x^n} = x^{m-n}, x \neq 0$$

$$(x^n)^m = x^{nm} \qquad (xy)^n = x^n y^n$$

laws of exponents

For all real numbers x and all integers m and n ,

$$x^m \cdot x^n = x^{m+n} \qquad \frac{x^m}{x^n} = x^{m-n}, x \neq 0$$

$$(x^n)^m = x^{nm} \qquad (xy)^n = x^n y^n$$

The theorem stating the elementary properties of exponents.

line

line



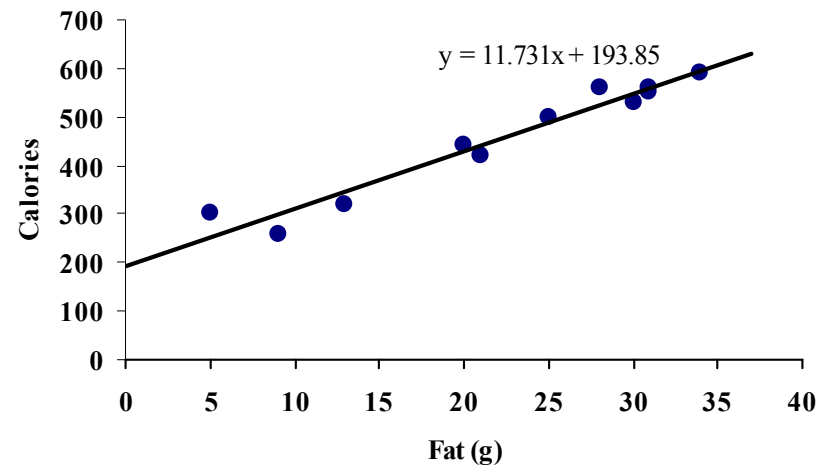
line



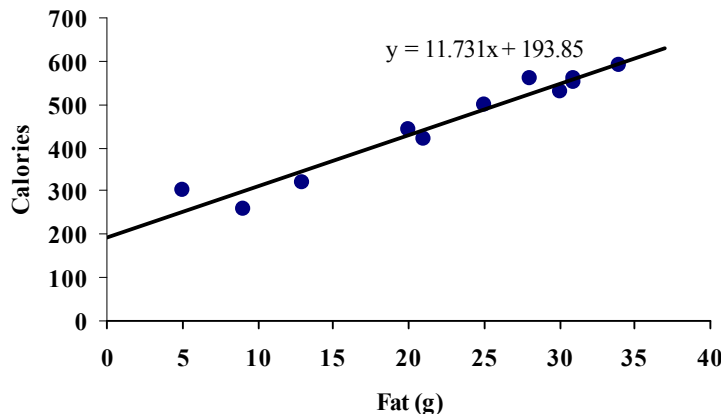
A line is the straight path connecting two points and extending beyond the points in both directions.

line of best fit

line of
best fit



line of
best fit



A line of best fit (or “trend” line) is a straight line that best represents the data on a scatter plot. This line may pass through some of the points, none of the points, or all of the points.

line segment

line
segment



line
segment



A line segment is a part of a line that is bounded by two end points, and contains every point on the line between its end points.

linear equation

linear
equation

$$2(x - 5) = 3x + 4$$

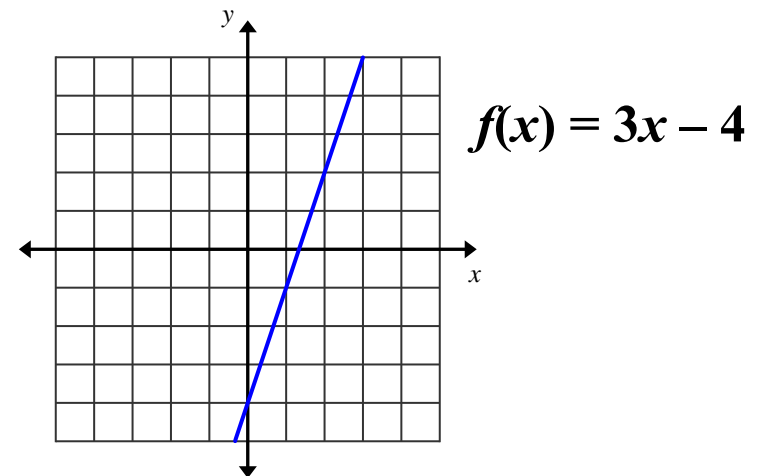
linear
equation

$$2(x - 5) = 3x + 4$$

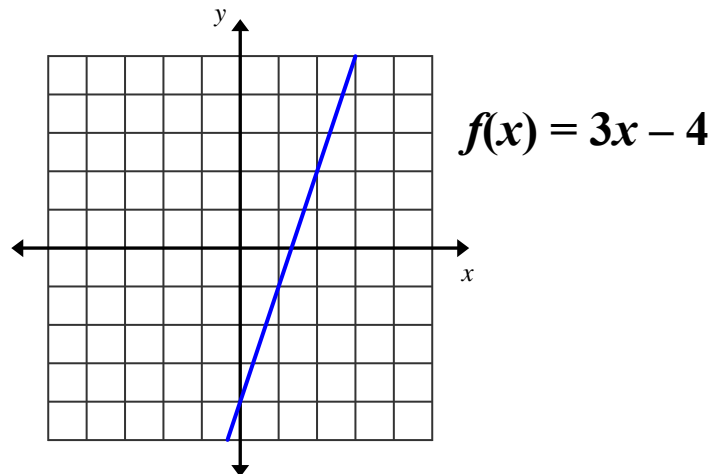
An algebraic equation in which each term is either a constant or the product of a constant and (the first power of) a single variable.

linear function

linear
function



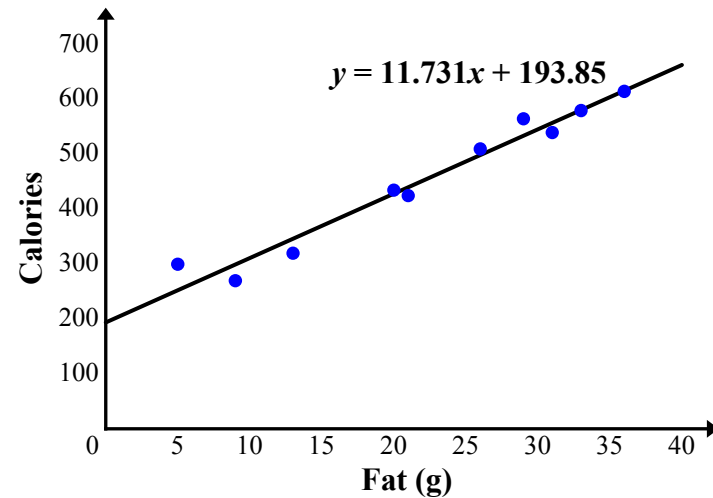
linear
function



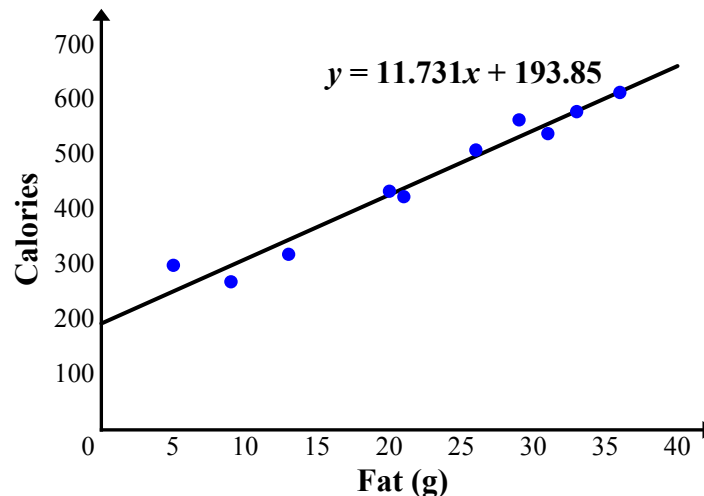
Functions that are a first-degree polynomial of one variable. The graph of the function is a line.

linear regression model

**linear
regression
model**



**linear
regression
model**



A model that shows the relationship between two variables by fitting a linear function to observed data.

