

Glossary

A

absolute deviation

The absolute value of each deviation is called the absolute deviation.

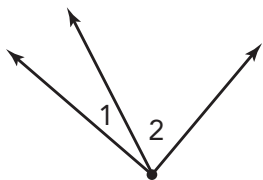
absolute value function

An absolute value function is a function that can be written in the form $y = |x|$, where x is any number or expression.

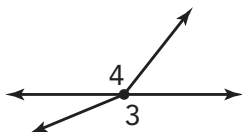
adjacent angles

Adjacent angles are two angles that share a common vertex and share a common side.

Examples



Angles 1 and 2 are adjacent angles.

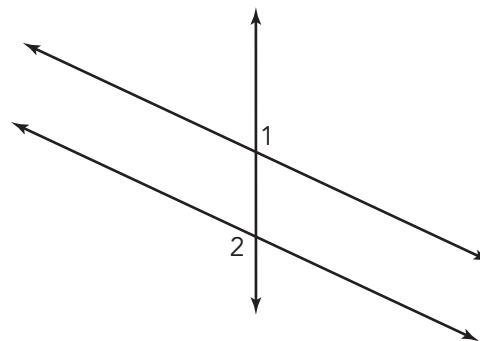


Angles 3 and 4 are NOT adjacent angles.

alternate exterior angles

Alternate exterior angles are angles formed when a transversal intersects two other lines. These angle pairs are on opposite sides of the transversal and are outside the other two lines.

Example

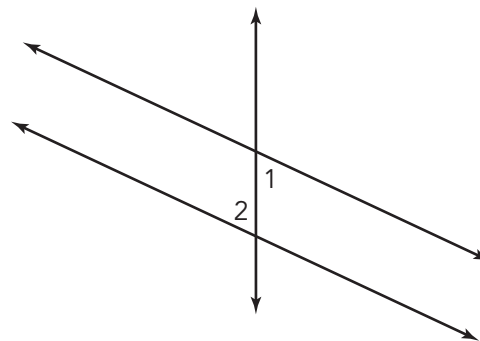


Angles 1 and 2 are alternate exterior angles.

alternate interior angles

Alternate interior angles are angles formed when a transversal intersects two other lines. These angle pairs are on opposite sides of the transversal and are between the other two lines.

Example

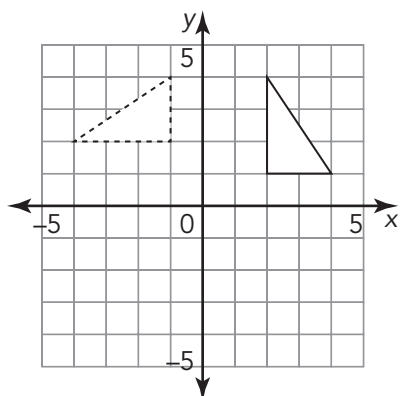


Angles 1 and 2 are alternate interior angles.

angle of rotation

The angle of rotation is the amount of rotation, in degrees, about a fixed point, the center of rotation.

Example



The angle of rotation is 90° counterclockwise about the origin $(0, 0)$.

Angle-Angle Similarity Theorem

The Angle-Angle Similarity Theorem states that if two angles of one triangle are congruent to the corresponding angles of another triangle, then the triangles are similar.

association

A pattern or relationship identified in a scatter plot of a two-variable data set is called an association.

B

bar notation

Bar notation is used to indicate the digits that repeat in a repeating decimal.

Example

In the quotient of 3 and 7, the sequence 428571 repeats. The numbers that lie underneath the bar are the numbers that repeat.

$$\frac{3}{7} = 0.4285714285714... = 0.\overline{428571}$$

base

The base of a power is the factor that is multiplied repeatedly in the power.

Examples

$$\begin{array}{ccc} 2^3 = 2 \times 2 \times 2 = 8 & & 8^0 = 1 \\ \uparrow & & \uparrow \\ \text{base} & & \text{base} \end{array}$$

bivariate data

When you collect information about two separate characteristics for the same person, thing, or event, you have collected bivariate data.

break-even point

When one line represents the cost of an item and the other line represents the income from selling the item, the point of intersection is called the break-even point.

C

census

A census is the data collected from every member of a population.

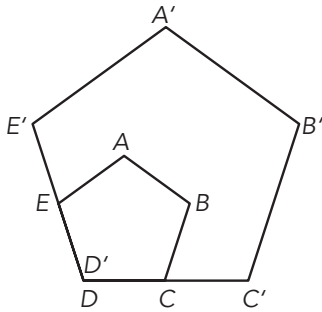
cash advance

A cash advance is a service provided by credit card companies that allows their customers to take out money directly from a bank or ATM.

center of dilation

The point from which a dilation is generated is called the center of dilation.

Example

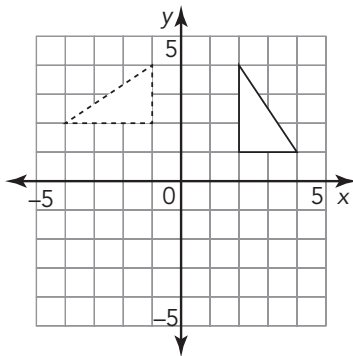


The center of dilation is point D .

center of rotation

The center of rotation is the point around which a figure is rotated. The center of rotation can be a point on the figure, inside the figure, or outside the figure.

Example



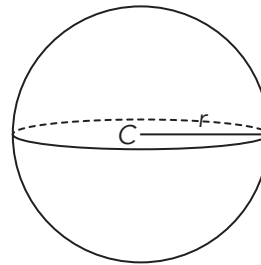
The figure has been rotated 90° counterclockwise about the center of rotation, which is the origin $(0, 0)$.

center of a sphere

The given point from which the set of all points in three dimensions are the same distance is the center of the sphere.

Example

Point C is the center of the sphere.



characteristic

In the expression $a \times 10^n$, the variable n is called the characteristic.

Example

$$6.1 \times 10^5 = 610,000$$

↑
characteristic

closed

A set of numbers is said to be closed under an operation if the result of the operation on two numbers in the set is a defined value also in the set.

Example

The set of integers is closed under the operation of addition because for every two integers a and b , the sum $a + b$ is also an integer.

collinear

When points lie on the same line or line segment, they are said to be collinear.

Example

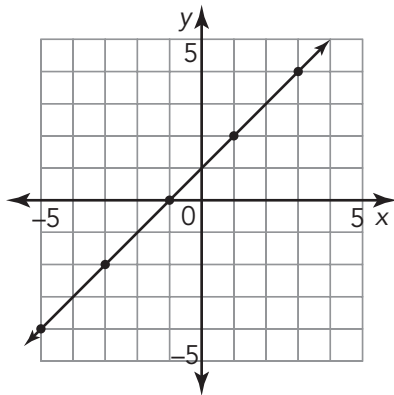


Points C , A , and B are collinear.

collinear points

Collinear points are points that lie in the same straight line.

Example

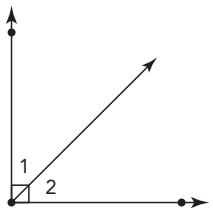


All the points on the graph are collinear points.

complementary angles

Two angles are complementary angles if the sum of their angle measures is equal to 90° .

Example



Angles 1 and 2 are complementary angles.

complementary events

Complementary events are events that together contain all of the outcomes in the sample space.

Example

When rolling a six-sided number cube with the numbers 1 through 6 on each face, the event of rolling an even number and the event of rolling an odd number (not even) are complementary events.

compound event

A compound event combines two or more events, using the word "and" or the word "or."

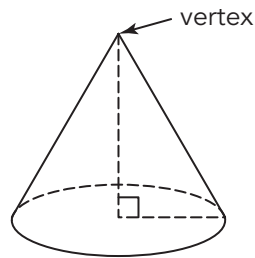
compound interest

Compound interest is a percentage that is paid on the principal and interest after each time period.

cone

A cone is a three-dimensional object with a circular or oval base and one vertex.

Example



congruent angles

Congruent angles are angles that are equal in measure.

congruent figures

Figures that have the same size and shape are congruent figures. If two figures are congruent, all corresponding sides and all corresponding angles have the same measure.

congruent line segments

Congruent line segments are line segments that have the same length.

consistent system

Systems that have one or an infinite number of solutions are called consistent systems.

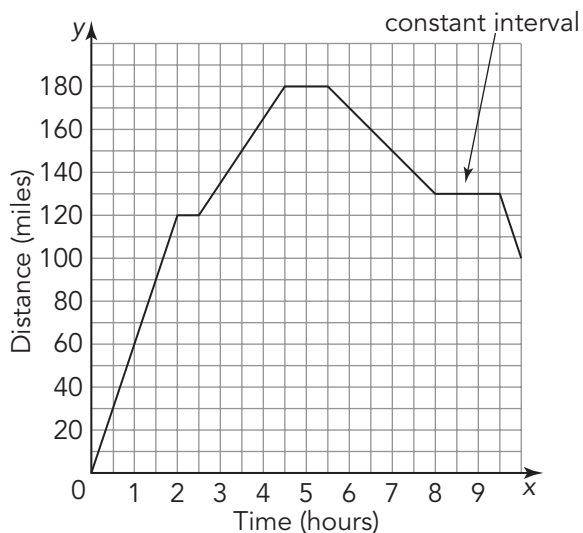
constant function

When the y -value of a function does not change, or remains constant, the function is called a constant function.

constant interval

When a function is constant for some values of the independent variable, it is said to have a constant interval.

Example



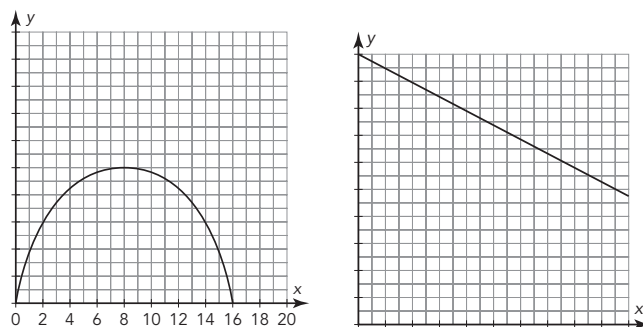
constant of proportionality

In a proportional relationship, the ratio of all y -values to their corresponding x -values is constant. This specific ratio, $\frac{y}{x}$, is called the constant of proportionality. Generally, the variable k is used to represent the constant of proportionality.

continuous

A continuous graph is a graph with no breaks in it.

Examples



converse

The converse of a theorem is created when the if-then parts of that theorem are exchanged.

Example

Triangle inequality Theorem:

If a polygon is a triangle, then the sum of any two of its side lengths is always greater than the length of the third side.

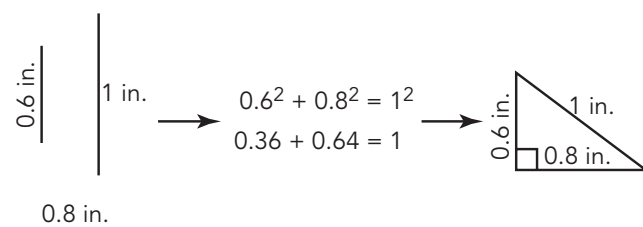
Converse of Triangle Inequality Theorem:

If you have three side lengths, and the sum of any two of the side lengths is greater than the third side length, then the side lengths can form a triangle.

Converse of the Pythagorean Theorem

The Converse of the Pythagorean Theorem states that if the sum of the squares of the two shorter sides of a triangle equals the square of the longest side, then the triangle is a right triangle.

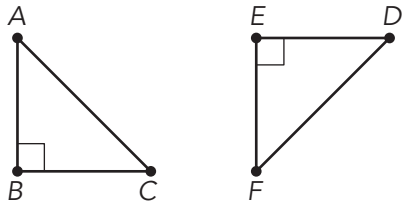
Example



corresponding angles

Corresponding angles are angles that have the same relative positions in geometric figures.

Example

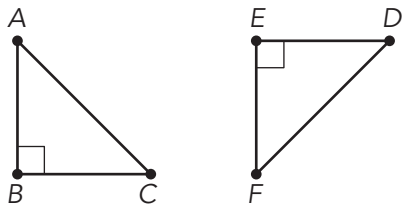


Angle B and Angle E are corresponding angles.

corresponding sides

Corresponding sides are sides that have the same relative positions in geometric figures.

Example



Sides AB and DE are corresponding sides.

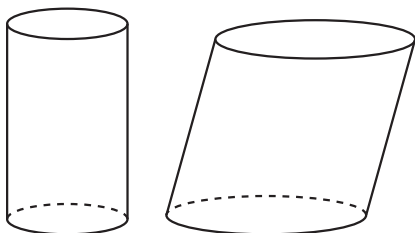
cubic function

A cubic function is a function that can be written in the form $y = ax^3 + bx^2 + cx + d$, where each coefficient or constant a , b , c , and d is a real number and a is not equal to 0.

cylinder

A cylinder is a three-dimensional object with two parallel, congruent circular bases.

Examples



data

When information is collected, the facts or numbers gathered are called data.

decreasing function

When the value of a dependent variable decreases as the independent variable increases, the function is called a decreasing function.

deferment

A deferment is a period of time, usually up to two years, in which students delay paying the principal and interest on their loan.

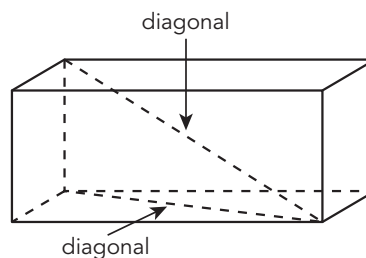
deviation

The deviation of a data value indicates how far that data value is from the mean.

diagonal

In a three-dimensional figure, a diagonal is a line segment connecting any two non-adjacent vertices.

Example



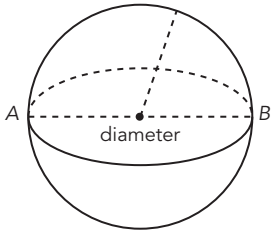
diagonal of a square

A diagonal of a square is a line segment connecting opposite vertices of the square.

diameter of the sphere

A segment drawn between two points on the sphere that passes through the center of the sphere is a diameter of the sphere.

Example

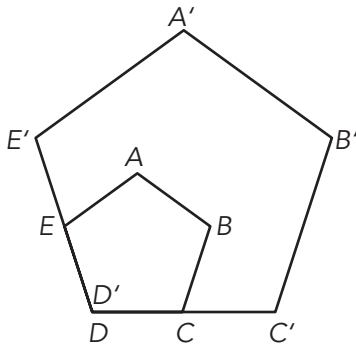


The diameter of the sphere is labeled.

dilation

A dilation is a transformation that produces a figure that is the same shape as the original figure, but not necessarily the same size.

Example

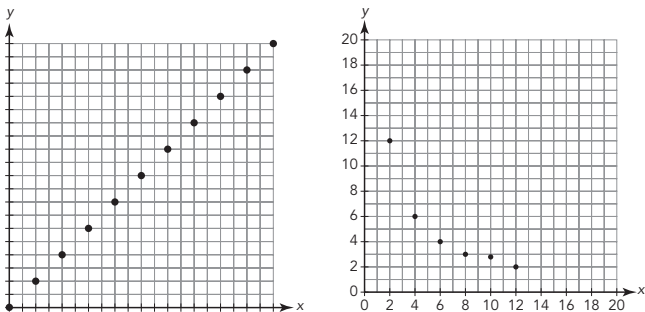


Pentagon $A'B'C'D'E'$ is a dilation of Pentagon $ABCDE$.

discrete

A discrete graph is a graph of isolated points.

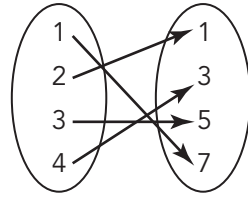
Examples



domain

The domain of a function is the set of all inputs of the function.

Example



The domain in the mapping shown is $\{1, 2, 3, 4\}$.

E

ellipsis

An ellipsis is a set of three periods which stands for "and so on."

Example

3, 9, 27, 81, ...
 ↑
 ellipsis

enlargement

When the scale factor is greater than 1, the image is called an enlargement.

equally likely

When the probabilities of all the outcomes of an experiment are equal, then the outcomes are called equally likely.

Example

When rolling a six-sided number cube with the numbers 1 through 6 on each face, the probability of rolling each number from 1 through 6 is equally likely.

equation

An equation is a mathematical sentence that uses an equals sign to show that two quantities are the same as one another.

Examples

$$y = 2x + 4$$

$$6 = 3 + 3$$

$$2(8) = 26 - 10$$

$$\frac{1}{4} \cdot 4 = \frac{8}{4} - \frac{4}{4}$$

event

An event is one possible outcome or a group of possible outcomes for a given situation.

Example

When rolling a six-sided number cube with the numbers 1 through 6 on each face, an event could be rolling an even number.

experiment

An experiment is a situation involving chance that leads to results, or outcomes.

Example

Rolling a six-sided number cube is an experiment.

experimental probability

Experimental probability is the ratio of the number of times an event occurs to the total number of trials performed.

Example

Suppose there is one red, one blue, one green, and one yellow marble in a jar. You draw the blue marble 20 times out of 50 trials. The experimental probability, $P_E(\text{blue})$, is $\frac{20}{50}$ or $\frac{2}{5}$.

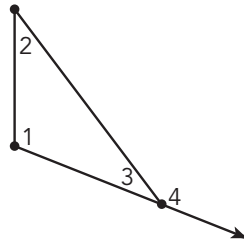
explanatory variable

The independent variable can also be called the explanatory variable.

exterior angle of a polygon

An exterior angle of a polygon is an angle between a side of a polygon and the extension of its adjacent side.

Example

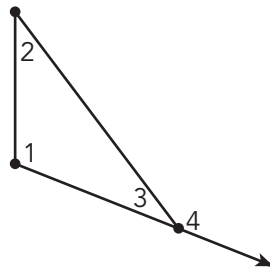


Angle 4 is an exterior angle of a polygon.

Exterior Angle Theorem

The Exterior Angle Theorem states that the measure of the exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles of the triangle.

Example



According to the Exterior Angle Theorem, $m\angle 4 = m\angle 1 + m\angle 2$.

extrapolating

Extrapolating is predicting values that fall outside the plotted values on a scatter plot.

first differences

First differences are the values determined by subtracting consecutive y -values in a table when the x -values are consecutive integers. When the first differences are equal, the points represented by the ordered pairs in the table will form a straight line.

Example

x	y
1	25
2	34
3	45

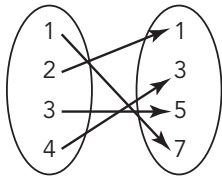
$34 - 25 = 9$
 $45 - 34 = 11$

The first differences are 9 and 11, so the points represented by these ordered pairs will not form a straight line.

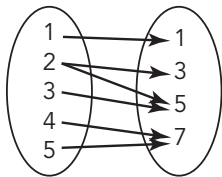
function

A function maps each input to one and only one output.

Example



This mapping represents a function.



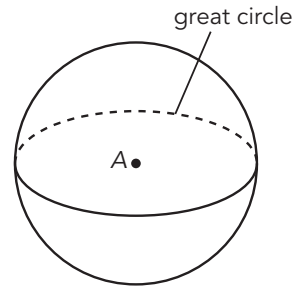
This mapping does NOT represent a function.

great circle

A great circle is the circumference of the sphere at the sphere's widest part.

Example

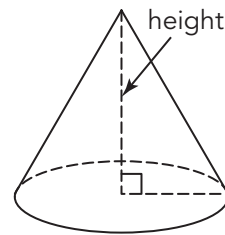
Point A is the center of the sphere. It is also the center of the great circle.



height of a cone

The height of a cone is the length of a line segment drawn from the vertex to the base of the cone. In a right cone, this line segment is perpendicular to the base.

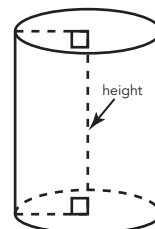
Example



height of a cylinder

The height of a cylinder is the length of a line segment drawn from one base to the other base, perpendicular to both bases.

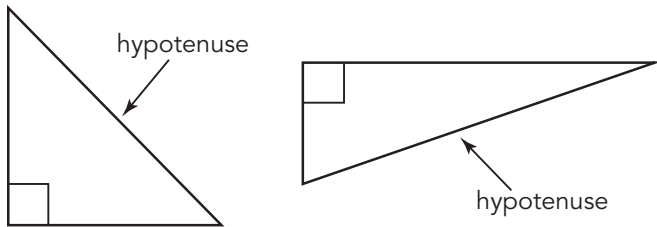
Example



hypotenuse

The side opposite the right angle in a right triangle is called the hypotenuse.

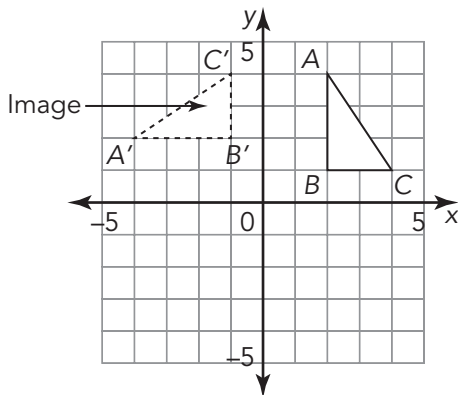
Examples



image

The new figure created from a transformation is called the image.

Example



inconsistent system

Systems that have no solution are called inconsistent systems.

increasing function

When both values of a function increase together, the function is called an increasing function.

inequality

An inequality is any mathematical sentence that has an inequality symbol. The solution set of an inequality is all values that make the inequality statement true.

input

The first coordinate of an ordered pair in a relation is the input.

integers

Integers are the set of whole numbers and their additive inverses.

Example

The set of integers can be represented as $\{\dots -3, -2, -1, 0, 1, 2, 3, \dots\}$

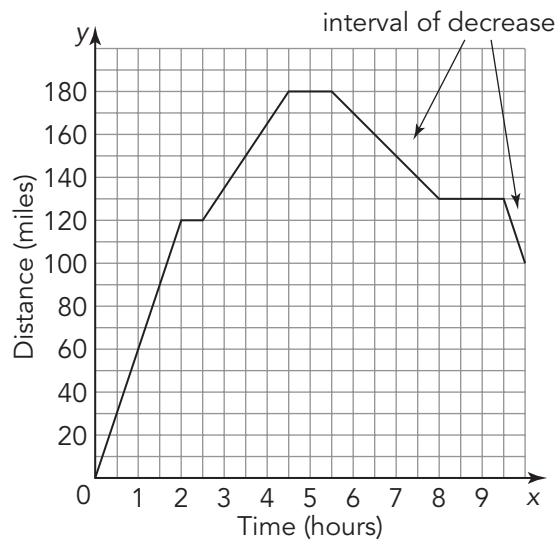
interpolating

Interpolating is predicting values that fall within the plotted values on a scatter plot.

interval of decrease

When a function is decreasing for some values of the independent variable, it is said to have an interval of decrease.

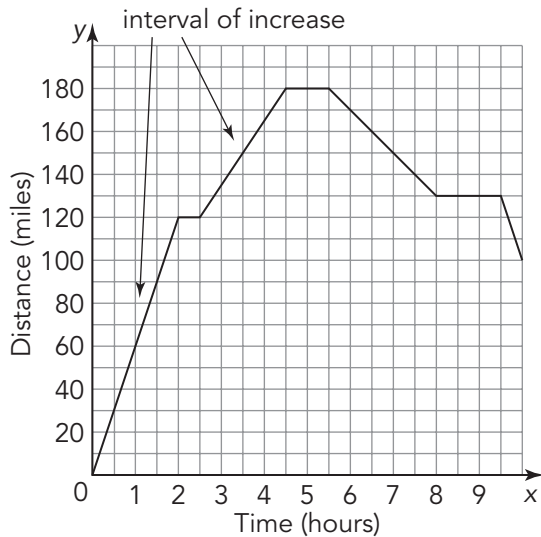
Example



interval of increase

When a function is increasing for some values of the independent variable, it is said to have an interval of increase.

Example



irrational numbers

Numbers that cannot be written as fractions in the form $\frac{a}{b}$, where a and b are integers and b is not equal to 0 are irrational numbers.

Examples

The numbers $\sqrt{2}$, $0.313113111\dots$, and π are irrational numbers

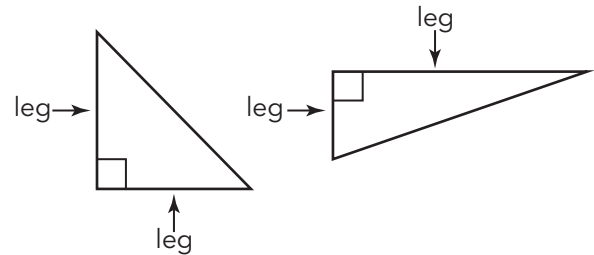
lateral surface area

The lateral surface area of a prism or pyramid is the sum of the areas of the lateral faces.

leg

A leg of a right triangle is either of the two shorter sides. Together, the two legs form the right angle of a right triangle.

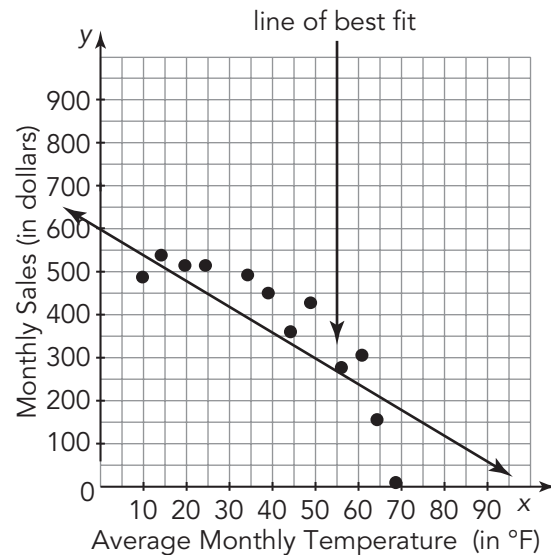
Examples



line of best fit

A line of best fit is a line that is as close to as many points as possible but doesn't have to go through all of the points.

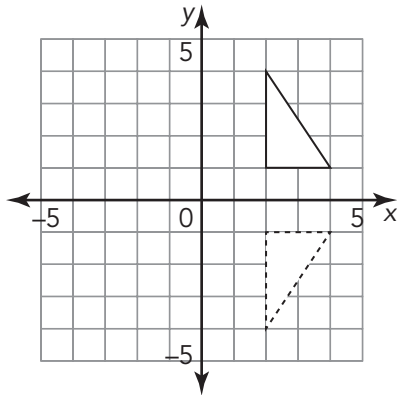
Example



line of reflection

A line of reflection is a line that acts as a mirror so that corresponding points are the same distance from the line.

Example

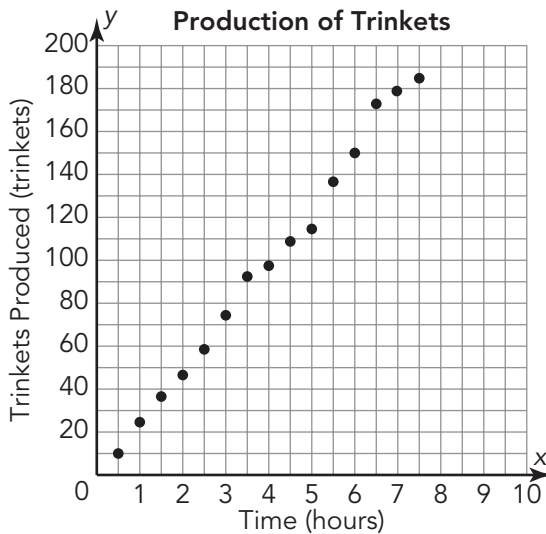


The x-axis is the line of reflection.

linear association

A linear association occurs when the points on the scatter plot seem to form a line.

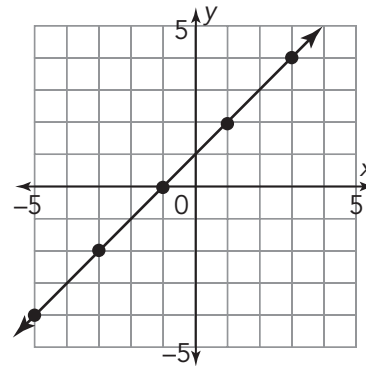
Example



linear function

A function whose graph is a straight line is a linear function.

Example

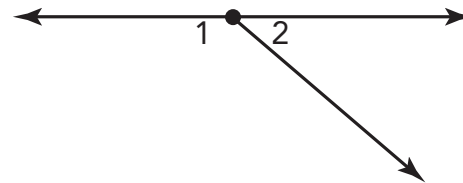


The function $f(x) = x + 1$ is a linear function.

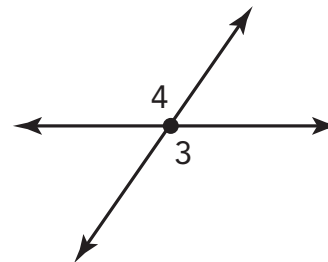
linear pair

A linear pair of angles is formed by two adjacent angles that have noncommon sides that form a line.

Examples



Angles 1 and 2 form a linear pair.



Angles 3 and 4 do NOT form a linear pair.

literal equation

A literal equation is an equation in which the variables represent specific measures.

Examples

$$A = lw \quad A = \frac{1}{2}bh \quad d = rt$$

M

mantissa

In the expression $a \times 10^n$, the variable a is called the mantissa. In scientific notation, the mantissa is greater than or equal to 1 and less than 10.

Example

$$6.1 \times 10^5 = 610,000$$

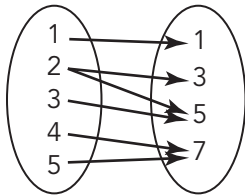


mantissa

mapping

A mapping represents two sets of objects or items. Arrows connect the items to represent a relationship between them.

Example



mean absolute deviation

The mean absolute deviation (MAD) is the mean of the absolute deviations.

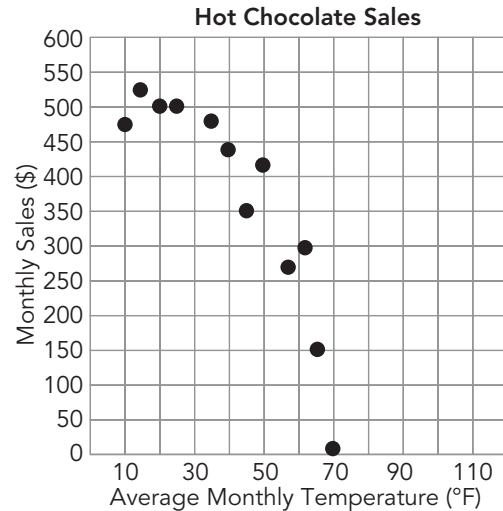
model

When you use a line of best fit, the line and its equation are often referred to as a model of the data, or a trend line. (See *trend line*.)

negative association

If the response variable decreases as the explanatory variable increases, then the two variables have a negative association.

Example

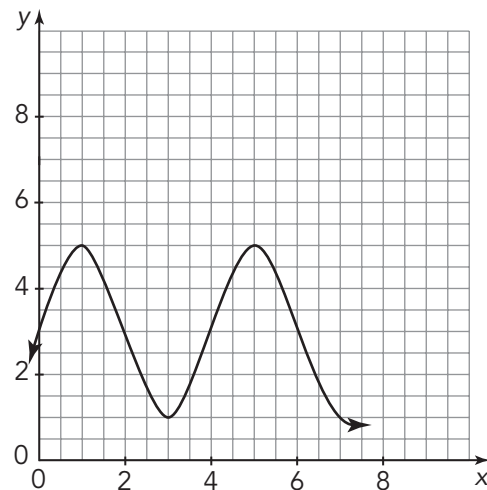


There is a negative association between average monthly temperature and hot chocolate sales.

non-linear

A non-linear graph is a graph that is not a line and therefore not a series of collinear points.

Example



non-uniform probability model

A non-uniform probability model occurs when all the probabilities in a probability model are not equal to each other.

Example

Outcome	Red	Green	Blue
Probability	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{3}{8}$



online calculator

An online calculator is an internet-based application that quickly performs calculations for the user.

order of magnitude

The order of magnitude is an estimate of size expressed as a power of ten.

Example

The Earth's mass has an order of magnitude of about 10^{24} kilograms.

outcome

An outcome is the result of a single trial of a probability experiment.

Example

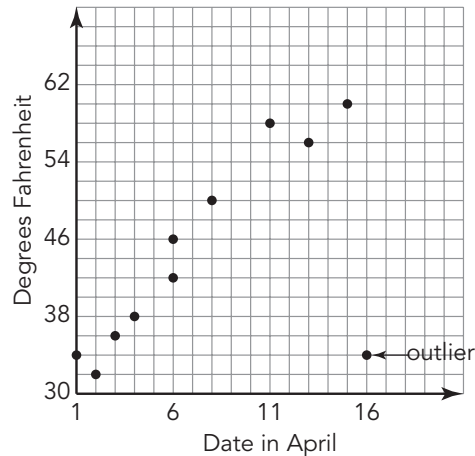
The numbers on the faces of a six-sided number cube are the outcomes that can occur when rolling a six-sided number cube.

outlier

An outlier for bivariate data is a point that varies greatly from the overall pattern of the data.

Example

Temperature of the first 16 days of April



output

The second coordinate of an ordered pair in a relation is the output.



parameter

When data are gathered from a population, the characteristic used to describe the population is called a parameter.

percent error (probability)

In probability, the percent error describes how far off the experimental probability is from the theoretical probability as a percent ratio.

Example

Suppose there is one red, one blue, one green, and one yellow marble in a jar. You draw the blue marble 20 times out of 50 trials.

The experimental probability, $P_E(\text{blue})$, is $\frac{20}{50}$ or $\frac{2}{5}$. The theoretical probability, $P_T(\text{blue})$, is $\frac{1}{4}$.

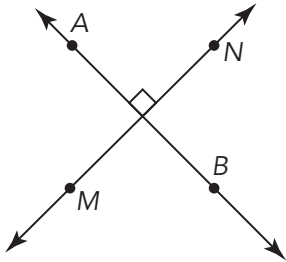
The percent error is $\frac{\frac{2}{5} - \frac{1}{4}}{\frac{1}{4}} = \frac{\frac{3}{20}}{\frac{1}{4}} = \frac{3}{5} = 0.6 = 60\%$

perpendicular

Two lines, line segments, or rays are perpendicular if they intersect to form 90° angles. The symbol for perpendicular is \perp .

Example

Line AB is perpendicular to line MN

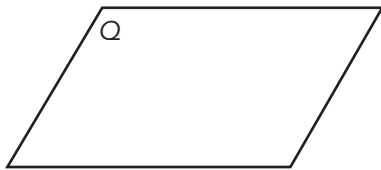


plane

A plane is a flat surface. It has infinite length and width, but no depth. A plane extends infinitely in all directions in two dimensions. Planes are determined by three points, but are usually named using one uppercase letter.

Example

Plane Q is shown.



point of intersection

The point of intersection is the point at which two lines cross on a coordinate plane. In a system of linear equations, a point of intersection indicates a solution to both equations.

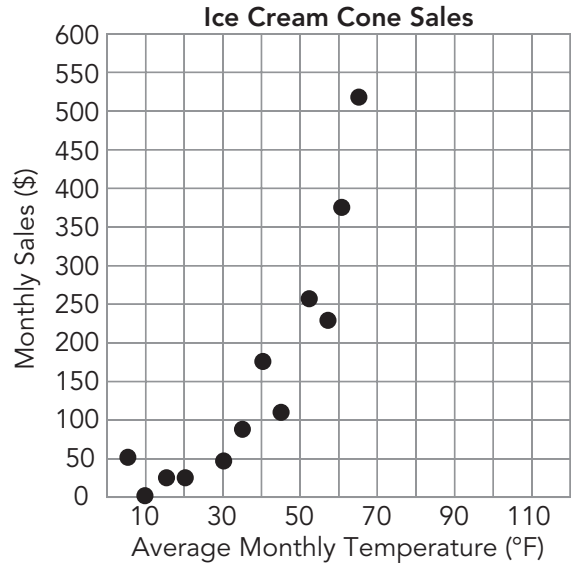
population

The population is the entire set of items from which data can be selected.

positive association

The two variables have a positive association if, as the explanatory variable increases, the response variable also increases.

Example

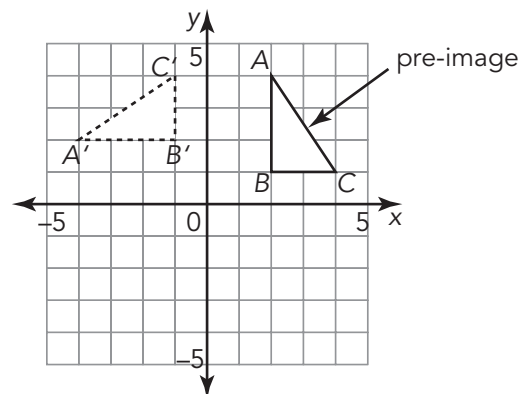


There is a positive association between the average monthly temperature and ice cream cone sales.

pre-image

The original figure in a transformation is called the pre-image.

Example



probability

Probability is the measure of the likelihood that an event will occur. It is a way of assigning a numerical value to the chance that an event will occur by dividing the number of times an event can occur by the number of possible outcomes.

Example

When rolling a six-sided number cube with the numbers 1 through 6 on each face, the probability of rolling a 5, or $P(5)$, is $\frac{1}{6}$.

probability model

A probability model is a list of each possible outcome along with its probability, often shown in a table.

Example

Outcome	1	2	3	4	5	6
Probability	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

This is a probability model for rolling a six-sided number cube with the numbers 1 through 6 on each face.

proof

A proof is a line of reasoning used to validate a theorem.

Properties of Inequalities

The Properties of Inequalities allow you to solve inequalities involving any numbers.

Example

Properties of Inequalities	For all numbers a , b , and c ,...
Addition Property of Inequalities	If $a < b$, then $a + c < b + c$. If $a < b$, then $a + c > b + c$.
Subtraction Property of Inequalities	If $a < b$, then $a - c < b - c$. If $a < b$, then $a - c > b - c$.
Multiplication Property of Inequalities	If $a < b$, then $a \cdot c > b \cdot c$, for $c > 0$. If $a < b$, then $a \cdot c > b \cdot c$, for $c > 0$.
Division Property of Inequalities	If $a < b$, then $\frac{a}{c} < \frac{b}{c}$, for $c > 0$. If $a < b$, then $\frac{a}{c} > \frac{b}{c}$, for $c > 0$.

These properties also hold true for \leq and \geq .

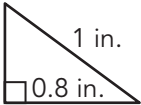
proportional relationship

A proportional relationship is one in which the ratio of the inputs to the outputs is constant. For a relationship to illustrate a proportional relationship, all the ratios $\frac{y}{x}$ or $\frac{x}{y}$, must represent the same constant.

Pythagorean Theorem

The Pythagorean Theorem states that the sum of the squares of the lengths of the legs of a right triangle equals the square of the length of the hypotenuse. If a and b are the lengths of the legs, and c is the length of the hypotenuse, then $a^2 + b^2 = c^2$.

Example


$$\begin{aligned} 0.6^2 + 0.8^2 &= 1^2 \\ 0.36 + 0.64 &= 1 \end{aligned}$$

Pythagorean triple

Any set of three positive integers a , b , and c that satisfies the equation $a^2 + b^2 = c^2$ is a Pythagorean triple.

Example

3, 4, and 5 is a Pythagorean triple: $3^2 + 4^2 = 5^2$

Q

quadratic function

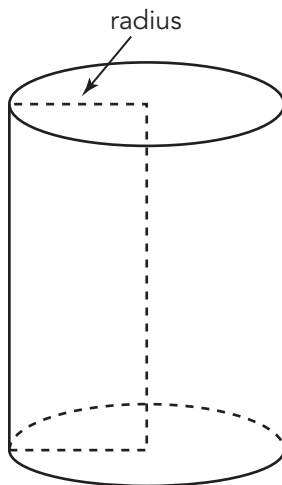
A quadratic function is a function that can be written in the form $y = ax^2 + bx + c$, where a , b , and c are any real numbers and a is not equal to zero.

R

radius of a cylinder

The radius of a cylinder is the distance from the center of the base to any point on the edge of the base.

Example

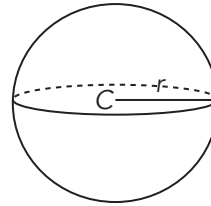


radius of the sphere

A segment drawn from the center of a sphere to a point on the sphere is called a radius of the sphere.

Example

Point C is the center of the sphere, and r is the radius of the sphere.



random number table

A random number table is a table that displays random digits. These tables can contain hundreds of digits.

Example

Line 7	54621	62117	55516	40467
--------	-------	-------	-------	-------

random sample

A random sample is a sample that is selected from the population in such a way that every member of the population has the same chance of being selected.

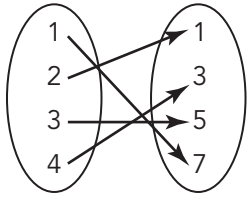
Example

If you wanted to determine the average height of the students at your school, you could choose just a certain number of students randomly and measure their heights. This group of students would be a random sample.

range

The range of a function is the set of all outputs of the function.

Example



The range in the mapping shown is $\{1, 3, 5, 7\}$.

rate of change

The rate of change for a situation describes the amount that the dependent variable changes compared with the amount that the independent variable changes.

rational numbers

Rational numbers are the set of numbers that can be written as $\frac{a}{b}$, where a and b are integers and $b \neq 0$.

Examples

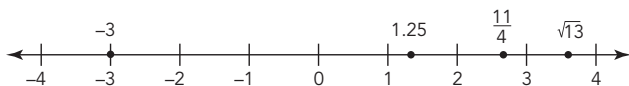
-4 , $\frac{1}{2}$, $\frac{2}{3}$, 0.67 , and $\frac{22}{7}$ are examples of rational numbers.

real numbers

Combining the set of rational numbers and the set of irrational numbers produces the set of real numbers. Real numbers can be represented on the real number line.

Examples

The numbers -3 , 1.25 , $\frac{11}{4}$, and $\sqrt{13}$ shown are real numbers.



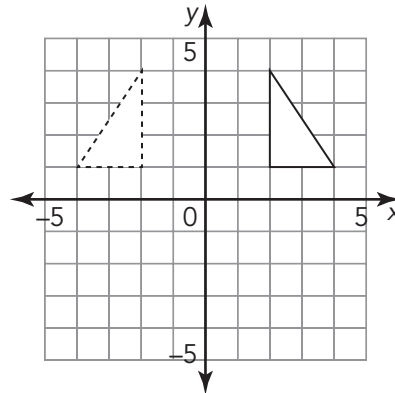
reduction

When the scale factor is less than 1, the image is called a reduction.

reflection

A reflection is a rigid motion transformation that “flips” a figure across a line of reflection.

Example

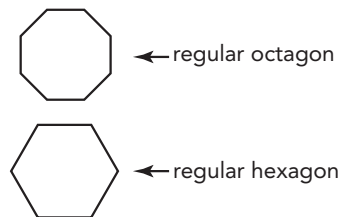


The figure has been reflected across the y -axis.

regular polygon

A regular polygon is a polygon with all sides congruent and all angles congruent.

Examples



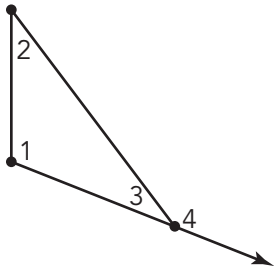
relation

A relation is any set of ordered pairs or the mapping between a set of inputs and a set of outputs.

remote interior angles of a triangle

The remote interior angles of a triangle are the two angles that are non-adjacent to the specified exterior angle.

Example



Angles 1 and 2 are remote interior angles of a triangle.

repeating decimal

A repeating decimal is a decimal in which a digit, or a group of digits, repeat(s) infinitely. Repeating decimals are rational numbers.

Examples

$$\frac{1}{9} = 0.111\dots \quad \frac{7}{12} = 0.58333\dots$$

$$\frac{22}{7} = 3.142857142857\dots$$

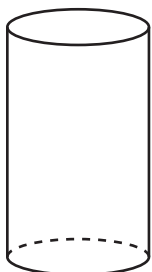
response variable

The dependent variable can also be called the response variable, because this is the variable that responds to what occurs to the explanatory variable.

right cylinder

A right cylinder is a cylinder in which the bases are aligned one directly above the other.

Example



rigid motion

A rigid motion is a special type of transformation that preserves the size and shape of the figure.

Examples

Translations, reflections, and rotations are examples of rigid motion transformations.

rotation

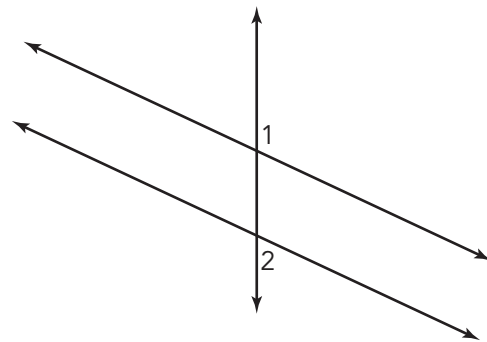
A rotation is a rigid motion transformation that turns a figure on a plane about a fixed point, called the center of rotation, through a given angle, called the angle of rotation.

S

same-side exterior angles

Same-side interior angles are formed when a transversal intersects two other lines. These angle pairs are on the same side of the transversal and are outside the other two lines.

Example

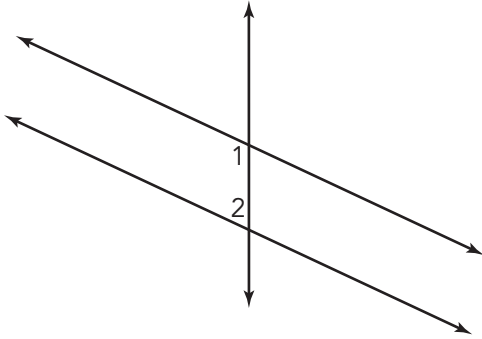


Angles 1 and 2 are same-side exterior angles.

same-side interior angles

Same-side interior angles are formed when a transversal intersects two other lines. These angle pairs are on the same side of the transversal and are between the other two lines.

Example



Angles 1 and 2 are same-side interior angles.

sample

A sample is a selection from a population.

Example

If you wanted to determine the average height of the students in your school, you could choose a certain number of students and measure their heights. The heights of the students in this group would be your sample.

sample space

A list of all possible outcomes of an experiment is called a sample space.

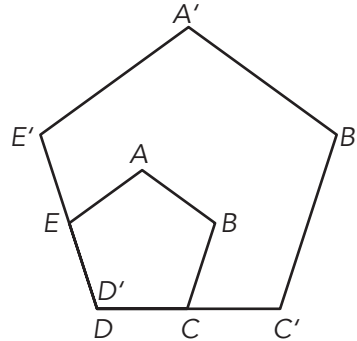
Example

When rolling a six-sided number cube that has one number, from 1 through 6, on each face, the sample space is {1, 2, 3, 4, 5, 6}.

scale factor

In a dilation, the scale factor is the ratio of the distance of the new figure from the center of dilation to the distance of the original figure from the center of dilation.

Example

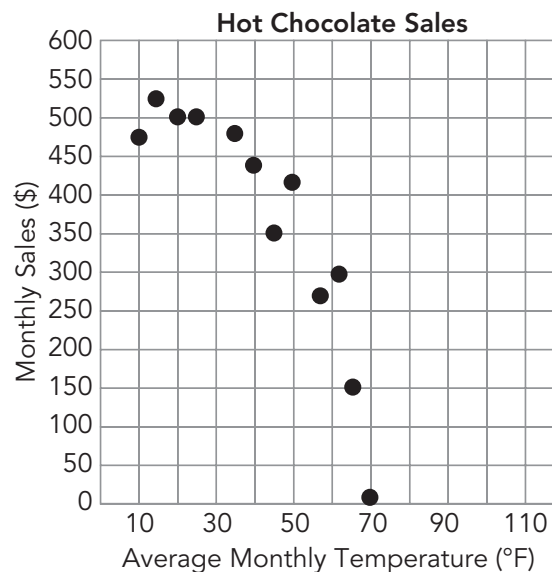


Pentagon $ABCDE$ has been dilated by a scale factor of 2 to create Pentagon $A'B'C'D'E'$.

scatter plot

A scatter plot is a graph of a collection of ordered pairs that allows an exploration of the relationship between the points.

Example



scientific notation

Scientific notation is a notation used to express a very large or a very small number as the product of a number greater than or equal to 1 and less than 10 and a power of 10.

Example

The number 1,345,000,000 is written in scientific notation as 1.345×10^9 .

sequence

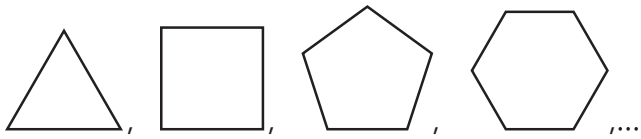
A sequence is a pattern involving an ordered arrangement of numbers, geometric figures, letters, or other objects.

Examples

Sequence A:

2, 4, 6, 8, 10, 12, . . .

Sequence B:



set

A set is a collection of numbers, geometric figures, letters, or other objects that have some characteristic in common.

Examples

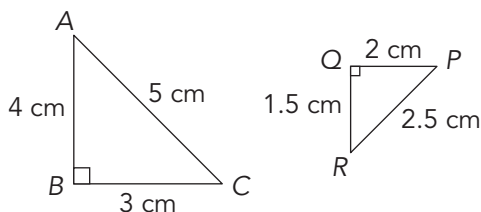
The set of counting numbers is $\{1, 2, 3, 4, \dots\}$

The set of even numbers is $\{2, 4, 6, 8, \dots\}$

similar

When two figures are similar, the ratios of their corresponding side lengths are equal.

Example



Triangle ABC is similar to Triangle PQR .

simple event

A simple event is an event consisting of one outcome.

Example

When rolling a six-sided number cube with the numbers 1 through 6 on each face, rolling a 5 is a simple event.

simple interest

Simple interest is a percentage that is paid only on the original principal.

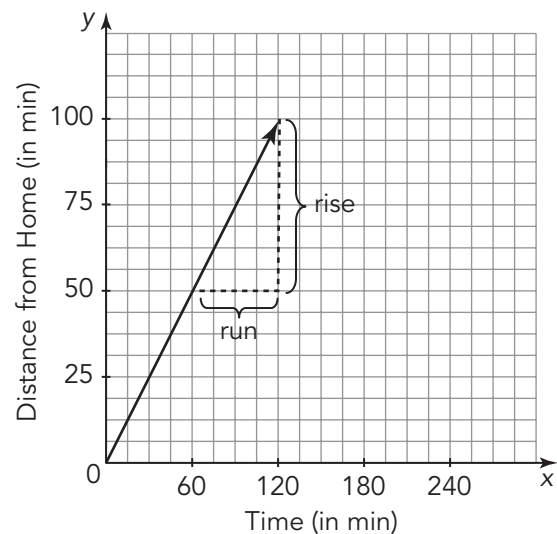
simulation

A simulation is an experiment that models a real-life situation.

slope

In any linear relationship, slope describes the direction and steepness of a line and is usually represented by the variable m . Slope is another name for rate of change. (See *rate of change*.)

Example



The slope of the line is $\frac{50}{60}$, or $\frac{5}{6}$.

slope-intercept form

The slope-intercept form of a linear equation is $y = mx + b$, where m is the slope of the line and $(0, b)$ is the y -intercept.

solution of a linear system

The solution of a linear system is an ordered pair (x, y) that is a solution to both equations in the system. Graphically, the solution is the point of intersection.

Example

$$\begin{cases} y = x + 5 \\ y = -2x + 8 \end{cases}$$

The solution to this system of equations is $(1, 6)$.

solution set

The values of the variable that make an inequality true are together called the solution set of the inequality.

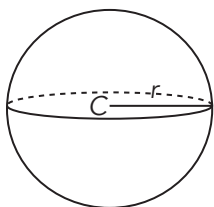
solve an inequality

To solve an inequality means to determine the values of the variable that make the inequality true. The objective when solving an inequality is similar to the objective when solving an equation. You want to isolate the variable on one side of the inequality symbol by using the operations of addition, subtraction, multiplication, and division.

sphere

A sphere is the set of all points in three dimensions that are the same distance from a given point called the center of the sphere.

Example



statistic

When data are gathered from a sample, the characteristic used to describe the sample is called a statistic.

straight angle

A straight angle is formed when the sides of the angle point in exactly opposite directions. The two legs form a straight line through the vertex.

Example

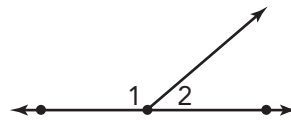
Angle CAB is a straight angle.



supplementary angles

Two angles are supplementary angles if the sum of their angle measures is equal to 180° .

Example



Angles 1 and 2 are supplementary angles.

survey

A survey is a method of collecting information about a certain group of people.

system of linear equations

When two or more linear equations define a relationship between quantities they form a system of linear equations.

Example

$$\begin{cases} y = x + 5 \\ y = -2x + 8 \end{cases}$$

term

A term in a sequence is an individual number, figure, or letter in the sequence.

Example

2, 7, 12, 17, 22, 27, 32, ...

↑
term

terminating decimal

A terminating decimal has a finite number of digits, meaning that after a finite number of decimal places, all following decimal places have a value of 0. Terminating decimals are rational numbers.

Examples

$$\frac{9}{10} = 0.9$$

$$\frac{15}{8} = 1.875$$

$$\frac{193}{16} = 12.0625$$

terms of an investment

The terms of an investment include the type of loan, amount of money invested, and the length of the investment.

theoretical probability

The theoretical probability of an event is the ratio of the number of desired outcomes to the total possible outcomes.

Example

Suppose there is one red, one blue, one green, and one yellow marble in a jar. The theoretical probability of drawing a blue marble, $P_T(\text{blue})$, is $\frac{1}{4}$.

transformation

A transformation is the mapping, or movement, of a plane and all the points of a figure on a plane according to a common action or operation.

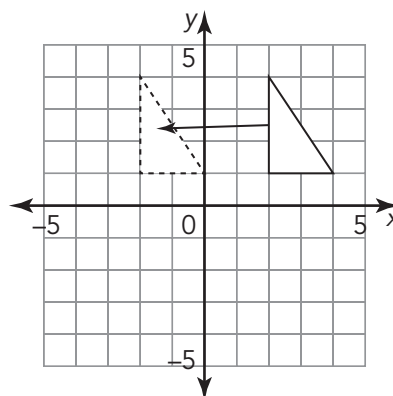
Examples

Translations, reflections, rotations, and dilations are examples of transformations.

translation

A translation is a rigid motion transformation that “slides” each point of a figure the same distance and direction.

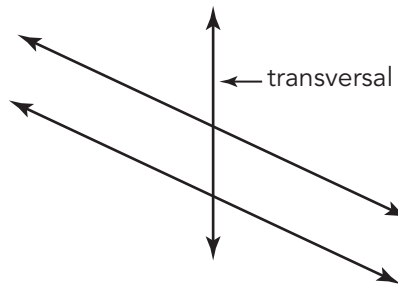
Example



transversal

A transversal is a line that intersects two or more lines at distinct points.

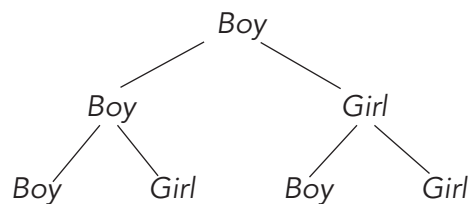
Example



tree diagram

A tree diagram illustrates the possible outcomes of a given situation. It has two main parts: the branches and the ends. An outcome of each event is written at the end of each branch.

Example



trend line

When you use a line of best fit, the line and its equation are often referred to as a model of the data, or a trend line. (See *model*.)

Triangle Sum Theorem

The Triangle Sum Theorem states that the sum of the measures of the interior angles of a triangle is 180° .

two-step equation

A two-step equation requires that two inverse operations be performed in order to isolate the variable.

U

uniform probability model

A uniform probability model occurs when all the probabilities in a probability model are equally likely to occur.

Example

Outcome	1	2	3	4	5	6
Probability	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

unit rate of change

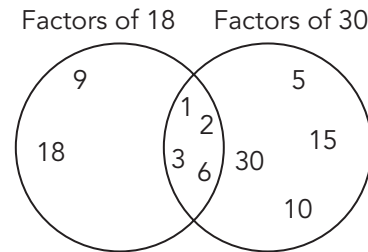
The unit rate of change describes the amount the dependent variable changes for every unit the independent variable changes.

V

Venn diagram

A Venn diagram uses circles to show how elements among sets of numbers or objects are related.

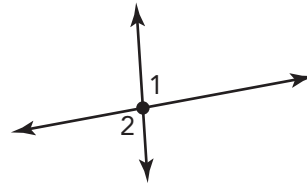
Example



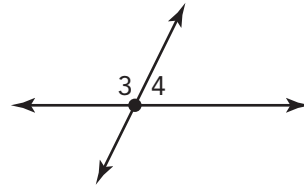
vertical angles

Vertical angles are two nonadjacent angles that are formed by two intersecting lines.

Examples



Angles 1 and 2 are vertical angles.

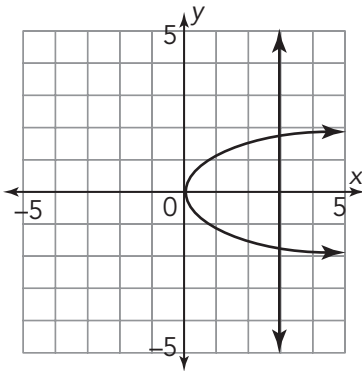


Angles 3 and 4 are NOT vertical angles.

vertical line test

The vertical line test is a visual method used to determine whether a relation represented as a graph is a function. To apply the vertical line test, consider all the vertical lines that could be drawn on the graph of a relation. If any of the vertical lines intersect the graph of the relation at more than one point, then the relation is not a function.

Example



The line drawn at $x = 3$ crosses two points on the graph, so the relation is not a function.

whole numbers

Whole numbers are made up of the set of natural numbers and the number 0, the additive identity.

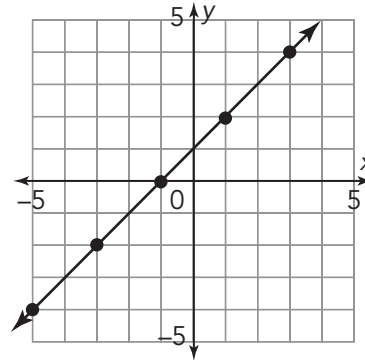
Example

The set of whole numbers can be represented as $\{0, 1, 2, 3, 4, 5, \dots\}$.

y-intercept

The y-intercept is the y-coordinate of the point where a graph crosses the y-axis. The y-intercept can be written in the form $(0, y)$.

Example



The y-intercept of the graph is $(0, 1)$.