Vocabulary Flash Cards

conjecture *Chapter 1 (p. 3)*	**equation** *Chapter 1 (p .4)*
equivalent equations *Chapter 1 (p. 4)*	**formula** *Chapter 1 (p. 29)*
identity *Chapter 1 (p. 23)*	**inverse operations** *Chapter 1 (p. 4)*
linear equation in one variable *Chapter 1 (p. 4)*	**literal equation** *Chapter 1 (p. 28)*

Vocabulary Flash Cards

A statement that two expressions are equal $4x = 16$ $a + 7 = 21$	An unproven statement about a general mathematical concept The product of an even and an odd number is always an even number.
A literal equation that shows how one variable is related to one or more other variables $A = \ell w$ $I = Prt$ $d = rt$	Equations that have the same solution(s) $2x - 8 = 0$ *and* $2x = 8$
Two operations that undo each other, such as addition and subtraction Multiplication and division are inverse operations.	An equation that is true for all values of the variable $2(x + 1) = 2x + 2$ $-3(2x + 3) = -6x - 9$
An equation that has two or more variables $2y + 6x = 12$	An equation that can be written in the form $ax + b = 0$, where a and b are constants and $a \neq 0$ $5x + 6 = 0$ $3x = 8$

Vocabulary Flash Cards

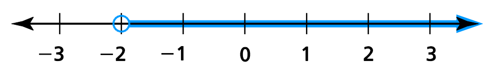
rule *Chapter 1 (p. 3)*	**solution of an equation** *Chapter 1 (p. 4)*
theorem *Chapter 1 (p. 3)*	

Vocabulary Flash Cards

A value that makes an equation true The solution of the equation $x - 4 = 2$ is 6.	A proven statement about a general mathematical concept; also known as a theorem The Pythagorean Theorem
	A proven statement about a general mathematical concept The Pythagorean Theorem

compound inequality *Chapter 2 (p. 74)*	**equivalent inequalities** *Chapter 2 (p. 54)*
graph of an inequality *Chapter 2 (p. 48)*	**inequality** *Chapter 2 (p. 46)*
solution of an inequality *Chapter 2 (p. 47)*	**solution set** *Chapter 2 (p. 47)*

Vocabulary Flash Cards

Inequalities that have the same solutions $3x + 5 > 0$ and $3x > 5$	An inequality formed by joining two inequalities with the word "and" or the word "or" $x \geq 2$ and $x < 5$ $y \leq -2$ or $y > 1$ $4 < x - 1 < 7$
A mathematical sentence that compares expressions $x - 4 < -14$ $x + 5 \geq -67$	A graph that shows the solution set of an inequality on a number line $x > -2$ 
The set of all solutions of an inequality 5 is in the solution set of $x > 1$ 3 is not in the solution set of $x \leq 1$	A value that makes an inequality true A solution of the inequality $x + 3 > -9$ is $x = 2$.

Vocabulary Flash Cards

constant function *Chapter 3 (p. 126)*	**constant of variation** *Chapter 3 (p. 134)*
continuous domain *Chapter 3 (p. 100)*	**dependent variable** *Chapter 3 (p. 93)*
direct variation *Chapter 3 (p. 134)*	**discrete domain** *Chapter 3 (p. 100)*
domain *Chapter 3 (p. 92)*	**family of functions** *Chapter 3 (p. 140)*

Vocabulary Flash Cards

The constant a in the inverse variation equation $y = \frac{a}{x}$, where $a \neq 0$

In the inverse variation equation $y = \frac{5}{x}$, 5 is the constant of variation.

A linear equation written in the form $y = 0x + b$, or $y = b$

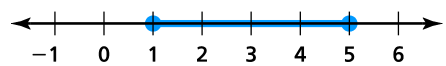
$y = 0x + 5$, or $y = 5$

The variable that represents output values of a function

In the function $y = 2x - 3$, y is the dependent variable.

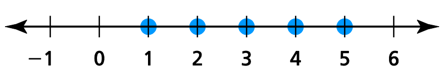
A set of input values that consist of all numbers in an interval

All numbers from 1 to 5



A set of input values that consists of only certain numbers in an interval

Integers from 1 to 5



An equation of the form $y = ax$, where $a \neq 0$ and y is said to vary directly with x

$y = 3x$

A group of functions with similar characteristics

Linear functions and absolute value functions are families of functions.

The set of all possible input values of a function

For the ordered pairs $(0, 6)$, $(1, 7)$, $(2, 8)$, and $(3, 9)$, the domain is 0, 1, 2, and 3.

function *Chapter 3 (p. 90)*	**function notation** *Chapter 3 (p. 108)*
horizontal shrink *Chapter 3 (p. 142)*	**horizontal stretch** *Chapter 3 (p. 142)*
independent variable *Chapter 3 (p. 93)*	**linear equation in two variables** *Chapter 3 (p. 98)*
linear function *Chapter 3 (p. 98)*	**nonlinear function** *Chapter 3 (p. 98)*

Vocabulary Flash Cards

Another name for y denoted as $f(x)$ and read as "the value of f at x" or "f of x"

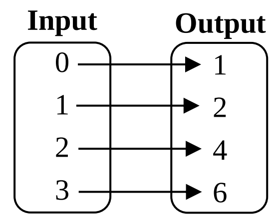
$y = 5x + 2$ can be written in function notation as $f(x) = 5x + 2$.

A relation that pairs each input with exactly one output

The ordered pairs (0, 1), (1, 2), (2, 4), and (3, 6) represent a function.

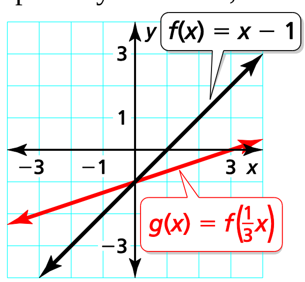
Ordered Pairs

(0, 1)
(1, 2)
(2, 4)
(3, 6)



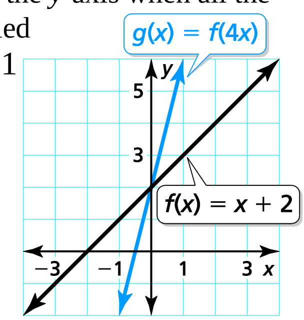
A transformation that causes the graph of a function to stretch away from the y-axis when all the x-coordinates are multiplied by a factor a, where $0 < a < 1$

The graph of g is a horizontal stretch of the graph of f by a factor of $1 \div \frac{1}{3} = 3$.



A transformation that causes the graph of a function to shrink toward the y-axis when all the x-coordinates are multiplied by a factor a, where $a > 1$

The graph of g is a horizontal shrink of the graph of f by a factor of $\frac{1}{4}$.



An equation that can be written in the form $y = mx + b$, where m and b are constants

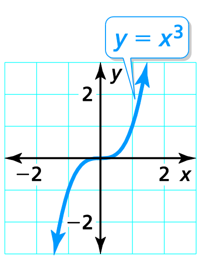
$y = 4x + 3$

$6x + 2y = 0$

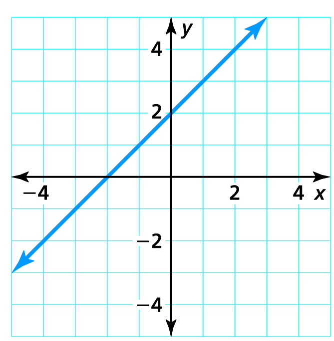
The variable that represents the input values of a function

In the function $y = 5x - 8$, x is the independent variable.

A function that does not have a constant rate of change and whose graph is not a line



A function whose graph is a nonvertical line



Vocabulary Flash Cards

parent function *Chapter 3 (p. 140)*	**range of a function** *Chapter 3 (p. 92)*
reflection *Chapter 3 (p. 141)*	**relation** *Chapter 3 (p. 90)*
rise *Chapter 3 (p. 124)*	**run** *Chapter 3 (p. 124)*
slope *Chapter 3 (p. 124)*	**slope-intercept form** *Chapter 3 (p. 126)*

Vocabulary Flash Cards

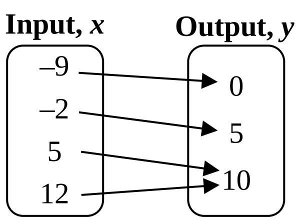
The set of all possible output values of a function

For the ordered pairs (0, 6), (1, 7), (2, 8), and (3, 9), the range is 6, 7, 8, and 9.

The most basic function in a family of functions

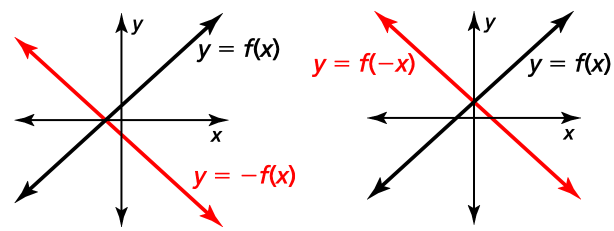
For linear functions, the parent function is $f(x) = x$.

A pairing of inputs with outputs



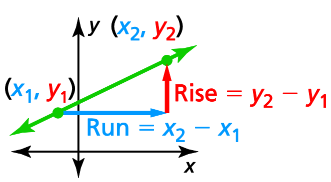
A transformation that flips a graph over a line called the *line of reflection*

Reflection in the x-axis **Reflection in the y-axis**



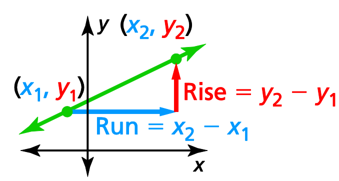
The change in x between any two points on a line

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$



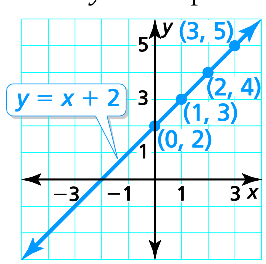
The change in y between any two points on a line

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$



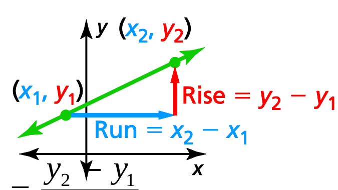
A linear equation written in the form $y = mx + b$

The slope is 1 and the y-intercept is 2.



The rate of change between any two points on a line

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$



Vocabulary Flash Cards

solution of a linear equation in two variables *Chapter 3 (p. 100)*	**standard form of a linear equation** *Chapter 3 (p. 116)*
transformation *Chapter 3 (p. 140)*	**translation** *Chapter 3 (p. 140)*
vertical shrink *Chapter 3 (p. 142)*	**vertical stretch** *Chapter 3 (p. 142)*
***x*-intercept** *Chapter 3 (p. 117)*	***y*-intercept** *Chapter 3 (p. 117)*

Vocabulary Flash Cards

A linear equation written in the form $Ax + By = C$, where A, B, and C are real numbers and A and B are not both zero

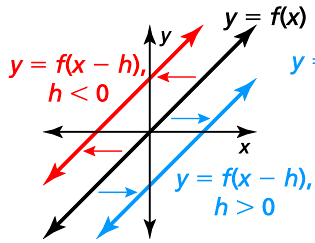
$-2x + 3y = -6$

An ordered pair (x, y) that makes an equation true

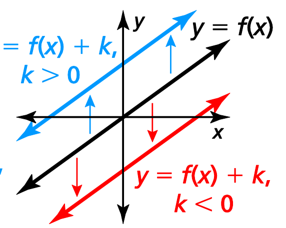
A solution of $x + 2y = -6$ is $(2, -4)$.

A transformation that shifts a graph horizontally and/or vertically but does not change the size, shape, or orientation of the graph

Horizontal Translations



Vertical Translations

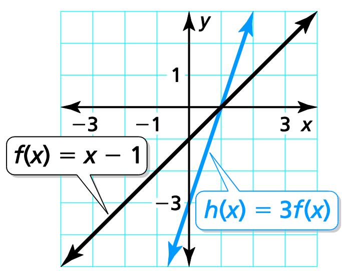


A change in the size, shape, position, or orientation of a graph

See translation, reflection, horizontal shrink, horizontal stretch, vertical shrink, and vertical stretch.

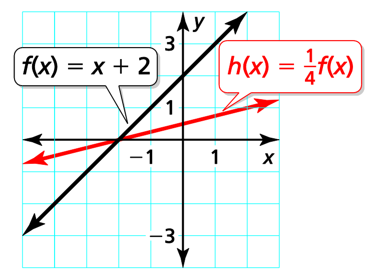
A transformation that causes the graph of a function to stretch away from the x-axis when all the y-coordinates are multiplied by a factor a, where $a > 1$

The graph of h is a vertical stretch of the graph of f by a factor of 3.

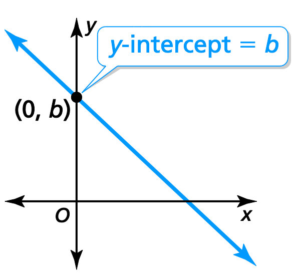


A transformation that causes the graph of a function to shrink toward the x-axis when all the y-coordinates are multiplied by a factor a, where $0 < a < 1$

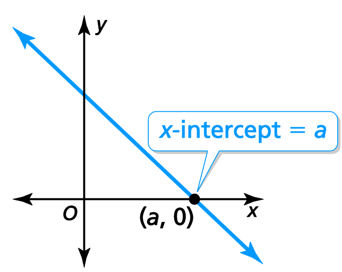
The graph of h is a vertical shrink of a graph of f by a factor of $\frac{1}{4}$.



The y-coordinate of a point where the graph crosses the y-axis



The x-coordinate of a point where the graph crosses the x-axis



zero of a function

Chapter 3 (p. 118)

Vocabulary Flash Cards

An x-value of a function f for which $f(x) = 0$; an x-intercept of the graph of the function

The zero of $f(x) = 2x - 6$ is 3 because $f(3) = 0$ and 3 is the x-intercept of the graph of the function.

Vocabulary Flash Cards

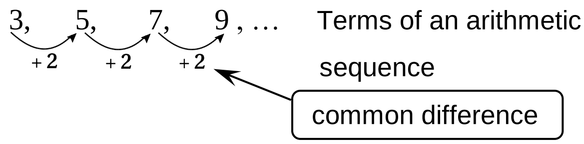
arithmetic sequence *Chapter 4 (p. 202)*	**causation** *Chapter 4 (p. 197)*
common difference *Chapter 4 (p. 202)*	**correlation** *Chapter 4 (p. 189)*
correlation coefficient *Chapter 4 (p. 195)*	**extrapolation** *Chapter 4 (p. 197)*
interpolation *Chapter 4 (p. 197)*	**line of best fit** *Chapter 4 (p. 195)*

Vocabulary Flash Cards

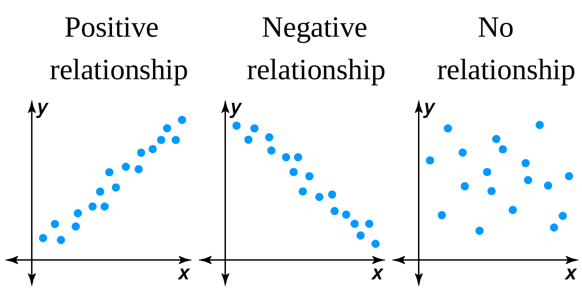
When a change in one variable causes a change in another variable

time spent exercising and the number of calories burned

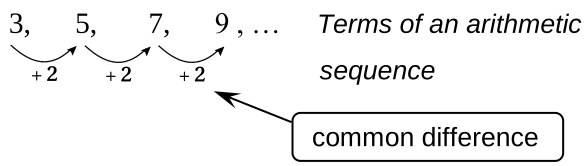
An ordered list of numbers in which the difference between each pair of consecutive terms is the same



A relationship between data sets



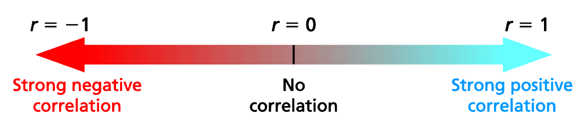
The difference between each pair of consecutive terms in an arithmetic sequence



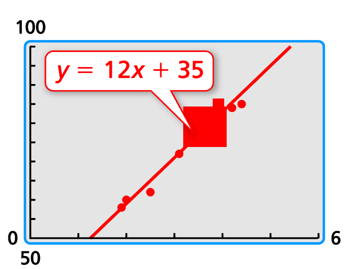
To predict a value outside the range of known values using a graph or its equation

You have a model relating age and average number of hours of sleep based on a data set where ages range from 6 to 55. Using the model to predict the average number of hours of sleep for a 5-year-old or a 57-year-old is an example of extrapolation.

A number r from –1 to 1 that tells how closely the equation of the line of best fit models the data



A line that best models a set of data



To approximate a value between two known values using a graph or its equation

You have a model relating age and average number of hours of sleep based on a data set where ages range from 6 to 55. Using the model to predict the average number of hours of sleep for a 47-year-old is an example of interpolation.

Vocabulary Flash Cards

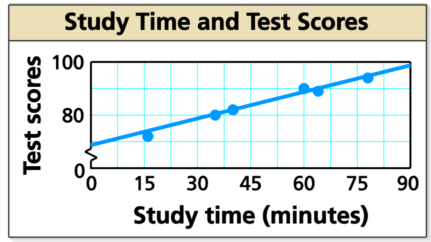
line of fit *Chapter 4 (p. 190)*	**linear model** *Chapter 4 (p. 164)*
linear regression *Chapter 4 (p. 195)*	**parallel lines** *Chapter 4 (p. 180)*
perpendicular lines *Chapter 4 (p. 181)*	**point-slope form** *Chapter 4 (p. 168)*
residual *Chapter 4 (p. 194)*	**scatter plot** *Chapter 4 (p. 188)*

Vocabulary Flash Cards

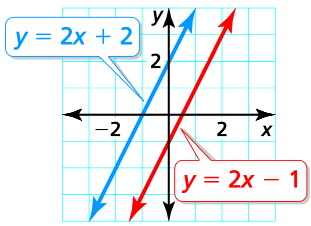
A linear function that models a real-life situation

The function $y = 0.8x + 16$ models a company's annual profits y (in millions) after x years.

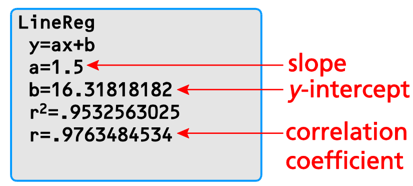
A line drawn on a scatter plot that is close to most of the data points



Two lines in the same plane that never intersect



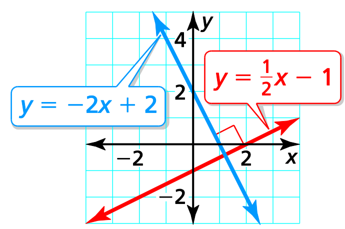
A method that graphing calculators use to find a precise line of fit that models a set of data



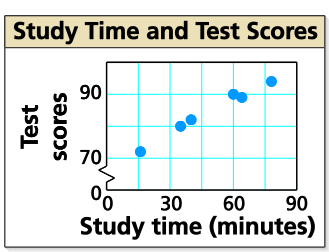
A linear equation written in the form $y - y_1 = m(x - x_1)$

$$y - 1 = \frac{2}{3}(x + 6)$$

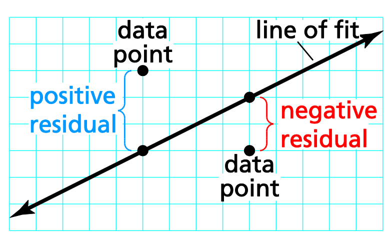
Two lines in the same plane that intersect to form right angles



A graph that shows the relationship between two data sets



The difference of the y-value of a data point and the corresponding y-value found using the line of fit



Vocabulary Flash Cards

sequence *Chapter 4 (p. 202)*	**terms of a sequence** *Chapter 4 (p. 202)*

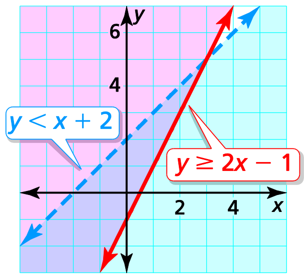
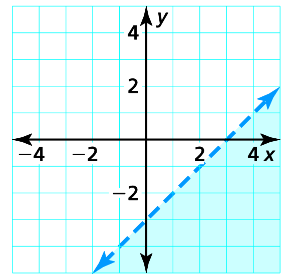
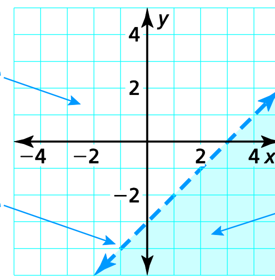
Vocabulary Flash Cards

Each number in a sequence $5,\ 10,\ 15,\ 20,\ \ldots,\ a_n,\ \ldots$ 1st position (5); 3rd position (15); *n*th position (a_n)	An ordered list of numbers $5, 10, 15, 20, \ldots, a_n, \ldots$ $2, 4, 8, 16, \ldots, a_n, \ldots$

Vocabulary Flash Cards

graph of a linear inequality *Chapter 5 (p. 252)*	**graph of a system of linear inequalities** *Chapter 5 (p. 261)*
half-planes *Chapter 5 (p. 252)*	**linear inequality in two variables** *Chapter 5 (p. 252)*
solution of a linear inequality in two variables *Chapter 5 (p. 252)*	**solution of a system of linear equations** *Chapter 5 (p. 220)*
solution of a system of linear inequalities *Chapter 5 (p. 260)*	**system of linear equations** *Chapter 5 (p. 220)*

Vocabulary Flash Cards

The graph of all the solutions of the system of linear inequalities 	The graph in two variables that shows all the solutions of the inequality in a coordinate plane The graph of $y < x - 3$ is the shaded half-plane. 
An inequality written in the form $ax + by < c$, $ax + by \le c$, $ax + by > c$, or $ax + by \ge c$, where a, b, and c are real numbers $2x + y < -3$ $x - 3y \ge 8$	Two regions of the coordinate plane divided by a boundary line 
An ordered pair that is a solution of each equation in the system The solution of the following system of linear equations is $(1,\ -3)$. $4x - y = 7$ Equation 1 $2x + 3y = -7$ Equation 2	An ordered pair $(x,\ y)$ that makes an inequality true A solution of $-x + 2y > 2$ is $(2,\ 4)$.
A set of two or more linear equations in the same variable $y = x + 1$ Equation 1 $y = 2x - 7$ Equation 2	An ordered pair that is a solution of each inequality in the system. The solution of the following system of linear inequalities is $(-2, 5)$. $x - y < 4$ Inequality 1 $2x - y \ge -9$ Inequality 2

Vocabulary Flash Cards

system of linear inequalities

Chapter 5 (p. 260)

Vocabulary Flash Cards

A set of two or more linear inequalities in the same variables

$y < x + 2$ Inequality 1

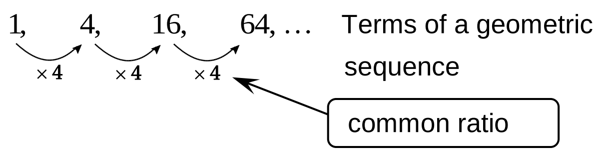
$y \geq 2x - 1$ Inequality 2

Vocabulary Flash Cards

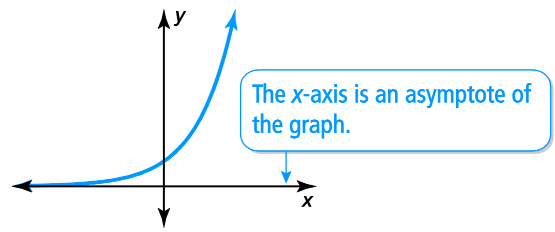
asymptote *Chapter 6 (p. 293)*	**common ratio** *Chapter 6 (p. 312)*
compound interest *Chapter 6 (p. 303)*	**explicit rule** *Chapter 6 (p. 320)*
exponential decay *Chapter 6 (p. 301)*	**exponential decay function** *Chapter 6 (p. 301)*
exponential function *Chapter 6 (p. 292)*	**exponential growth** *Chapter 6 (p. 300)*

Vocabulary Flash Cards

The ratio between each pair of consecutive terms in a geometric sequence



A line that a graph approaches more and more closely



A rule to define arithmetic and geometric sequences that gives a_n as a function of the term's position number n in the sequence

An explicit rule for the arithmetic sequence 1, 7, 13, 19, . . . is $a_n = 1 + 6(n - 1)$, or $a_n = 6n - 5$.

The interest earned on the principle and on previously earned interest

The balance y of an account earning compound interest is $y = P\left(1 + \frac{r}{n}\right)^{nt}$, where P is the principle (initial amount), r is the annual interest rate (in decimal form), t is the time (in years), and n is the number of times interest is compounded per year.

A function of the form $y = a(1 - r)^t$, where $a > 0$ and $0 < r < 1$

$$y = 20(0.15)^t$$

$$y = 500\left(\frac{7}{8}\right)^t$$

See exponential decay.

When a quantity decreases by the same factor over equal intervals of time

See exponential decay function.

When a quantity increases by the same factor over equal intervals of time

See exponential growth function.

A nonlinear function of the form $y = ab^x$, where $a \neq 0$, $b \neq 1$, and $b > 0$

$$y = -2(5)^x$$

$$y = 2(0.5)^x$$

Vocabulary Flash Cards

exponential growth function *Chapter 6 (p. 300)*	**geometric sequence** *Chapter 6 (p. 312)*
index of a radical *Chapter 6 (p. 286)*	***n*th root of *a*** *Chapter 6 (p. 286)*
radical *Chapter 6 (p. 286)*	**recursive rule** *Chapter 6 (p. 320)*

Vocabulary Flash Cards

An ordered list of numbers in which the ratio between each pair of consecutive terms is the same

1, 4, 16, 64, … Terms of a geometric sequence

×4 ×4 ×4

common ratio

A function of the form $y = a(1 + r)^t$, where $a > 0$ and $r > 0$

$$y = 20(1.15)^t$$

$$y = 500\left(\frac{7}{5}\right)^t$$

See exponential growth.

For an integer n greater than 1, if $b^n = a$, then b is an nth root of a.

$$\sqrt[3]{64} = \sqrt[3]{4 \bullet 4 \bullet 4} = 4$$

$$\sqrt[n]{a} = n\text{th root of } a$$

The value of n in the radical $\sqrt[n]{a}$

The index of $\sqrt[3]{125}$ is 3.

A rule to define arithmetic and geometric sequences that gives the beginning term(s) of a sequence and a recursive equation that tells how a_n is related to one or more preceding terms

$a_n = a_{n-1} + d$, where d is the common difference

$$a_1 = 2,\ a_n = a_{n-1} + 3$$

$a_n = r \bullet a_{n-1}$, where r is the common ratio

$$a_1 = 1,\ a_n = 3a_{n-1}$$

An expression of the form $\sqrt[n]{a}$

$$\sqrt[3]{20}$$

$$\sqrt[4]{35}$$

Vocabulary Flash Cards

binomial *Chapter 7 (p. 339)*	**closed** *Chapter 7 (p. 340)*
degree of a monomial *Chapter 7 (p. 338)*	**degree of a polynomial** *Chapter 7 (p. 339)*
factored completely *Chapter 7 (p. 390)*	**factored form** *Chapter 7 (p. 364)*
factoring by grouping *Chapter 7 (p. 390)*	**FOIL Method** *Chapter 7 (p. 347)*

Vocabulary Flash Cards

When an operation performed on any two numbers in the set results in a number that is also in the set The set of integers is closed under addition, subtraction, and multiplication, but not under division.	A polynomial with two terms $x^2 + 3x$ $2x - 1$
The greatest degree of the terms in a polynomial The degree of $6x^2 + x$ is 2. The degree of $x^5 + x^2 - 8$ is 5.	The sum of the exponents of the variables in the monomial The degree of 5 is 0. The degree of x^2 is 2. The degree of $2xy^3$ is $1 + 3 = 4$.
A polynomial that is written as a product of factors $x^2 + 2x = x(x + 2)$ $x^2 + 5x - 24 = (x - 3)(x + 8)$	A polynomial that is written as a product of unfactorable polynomials with integer coefficients $3x^3 - 18x^2 + 24x = 3x(x^2 - 6x + 8)$ $= 3x(x - 2)(x - 4)$
A shortcut for multiplying two binomials by finding the sum of the products of the first terms, outer terms, inner terms, and last terms F $(\mathbf{x} + 1)(\mathbf{x} + 2)$ ➡ $x(x) = x^2$ O $(\mathbf{x} + 1)(x + \mathbf{2})$ ➡ $x(2) = 2x$ I $(x + \mathbf{1})(\mathbf{x} + 2)$ ➡ $1(x) = x$ L $(x + \mathbf{1})(x + \mathbf{2})$ ➡ $1(2) = 2$	To use the Distributive Property to factor a polynomial with four terms $x^3 + 3x^2 + 2x + 6 = (x^3 + 3x^2) + (2x + 6)$ $= x^2(x + 3) + 2(x + 3)$ $= (x + 3)(x^2 + 2)$

Vocabulary Flash Cards

leading coefficient *Chapter 7 (p. 339)*	**monomial** *Chapter 7 (p. 338)*
polynomial *Chapter 7 (p. 339)*	**polynomial long division** *Chapter 7 (p. 358)*
repeated roots *Chapter 7 (p. 365)*	**roots** *Chapter 7 (p. 364)*
standard form of a polynomial *Chapter 7 (p. 339)*	**synthetic division** *Chapter 7 (p. 360)*

Vocabulary Flash Cards

A number, a variable, or a product of a number and one or more variables with whole number exponents

$$-5$$
$$0.5y^2$$
$$4x^2y$$

The coefficient of the first term of the polynomial written in standard form

The leading coefficient of $3x^2 + 5x - 1$ is 3.

A method to divide a polynomial $f(x)$ by a nonzero divisor $d(x)$ to yield a quotient polynomial $q(x)$ and a remainder polynomial $r(x)$

$$\begin{array}{r}
x + 3 \\
x + 1 \overline{)\, x^2 + 4x + 2} \\
\underline{x^2 + x} \\
3x + 2 \\
\underline{3x + 3} \\
-1
\end{array}$$

$$\frac{x^2 + 4x + 2}{x + 1} = x + 3 - \frac{1}{x + 1}$$

A monomial or a sum of monomials

$$5x + 2$$
$$x^2 + 5x + 2$$

The solution of a polynomial equation

The roots of the equation $(x + 9)(x - 4) = 0$ are $x = -9$ and $x = 4$.

Two or more roots of an equation that are the same number

The equation $(x + 2)^2 = 0$ has repeated roots of $x = -2$.

A shortcut method to divide a polynomial by a binomial of the form $x - k$

You can use synthetic division to divide $x^2 + 4x + 2$ by $x + 1$.

$$\begin{array}{r|rrr}
-1 & 1 & 4 & 2 \\
 & & -1 & -3 \\
\hline
 & 1 & 3 & -1
\end{array}$$

$$\frac{x^2 + 4x + 2}{x + 1} = x + 3 - \frac{1}{x + 1}$$

A polynomial in one variable written with the exponents of the terms decreasing form left to right

$$2x^3 + x^2 - 5x + 12$$
$$-x^3 + 15x + 3$$

Vocabulary Flash Cards

trinomial *Chapter 7 (p. 339)*	**Zero-Product Property** *Chapter 7 (p. 364)*

Vocabulary Flash Cards

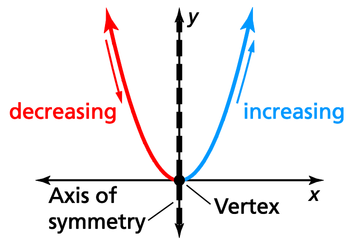
If the product of two real numbers is 0, then at least one of the numbers is 0. $(x+6)(x-5)=0$ $x+6=0$ *or* $x-5=0$ $x=-6$ *or* $x=5$	A polynomial with three terms x^2+5x+2

Vocabulary Flash Cards

average rate of change *Chapter 8 (p. 448)*	**axis of symmetry** *Chapter 8 (p. 406)*
even function *Chapter 8 (p. 428)*	**intercept form** *Chapter 8 (p. 436)*
maximum value *Chapter 8 (p. 419)*	**minimum value** *Chapter 8 (p. 419)*
odd function *Chapter 8 (p. 428)*	**parabola** *Chapter 8 (p. 406)*

Vocabulary Flash Cards

The vertical line that divides a parabola into two symmetric parts



The slope of the line through $(a, f(a))$ and $(b, f(b))$ of a function $y = f(x)$ between $x = a$ and $x = b$

$$\text{average rate of change} = \frac{\text{change in } y}{\text{change in } x} = \frac{f(b) - f(a)}{b - a}$$

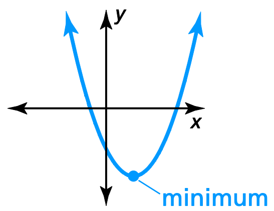
A quadratic function written in the form $f(x) = a(x - p)(x - q)$, where $a \neq 0$

$$f(x) = 2(x - 3)(x - 1)$$
$$f(x) = 3(x + 4)(x - 2)$$

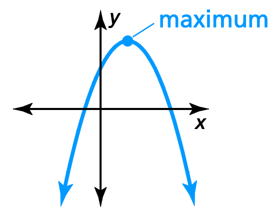
A function $y = f(x)$ is even when $f(-x) = f(x)$ for each x in the domain of f.

$$f(x) = x^2$$
$$f(x) = 3x^4 - 2x^2$$

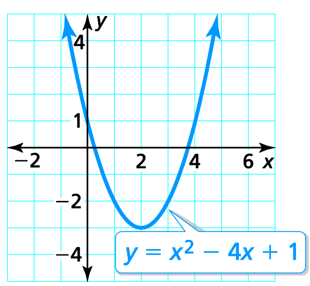
The y-coordinate of the vertex of the graph of $f(x) = ax^2 + bx + c$ when $a > 0$



The y-coordinate of the vertex of the graph of $f(x) = ax^2 + bx + c$ when $a < 0$



The U-shaped graph of a quadratic function



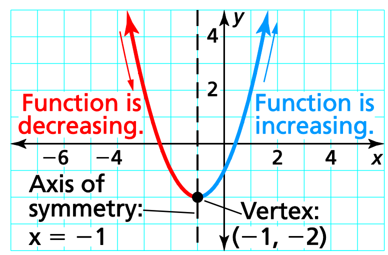
A function $y = f(x)$ is odd when $f(-x) = -f(x)$ for each x in the domain of f.

$$f(x) = x^3$$
$$f(x) = 2x^5 + x^3$$

Vocabulary Flash Cards

quadratic function *Chapter 8 (p. 406)*	**vertex form of a quadratic function** *Chapter 8 (p. 430)*
vertex of a parabola *Chapter 8 (p. 406)*	

Vocabulary Flash Cards

A quadratic function written in the form $f(x) = a(x - h)^2 + k$, where $a \neq 0$ $y = (x - 2)^2$ $y = -2(x + 4)^2 + 3$	A nonlinear function that can be written in the standard form $y = ax^2 + bx + c$, where $a \neq 0$ $y = -16x^2 + 48x + 6$
	The lowest point on a parabola that opens up or the highest point on a parabola that opens down 

Vocabulary Flash Cards

completing the square *Chapter 9 (p. 494)*	**conjugates** *Chapter 9 (p. 468)*
counterexample *Chapter 9 (p. 465)*	**discriminant** *Chapter 9 (p. 506)*
like radicals *Chapter 9 (p. 470)*	**quadratic equation** *Chapter 9 (p. 476)*
Quadratic Formula *Chapter 9 (p. 504)*	**radical expression** *Chapter 9 (p. 466)*

Vocabulary Flash Cards

Binomials of the form $a\sqrt{b} + c\sqrt{d}$ and $a\sqrt{b} - c\sqrt{d}$, where *a*, *b*, *c*, and *d* are rational numbers $6\sqrt{5} + 2\sqrt{3}$ and $6\sqrt{5} - 2\sqrt{3}$	To add a constant *c* to an expression of the form $x^2 + bx$ so that $x^2 + bx + c$ is a perfect square trinomial $x^2 + 6x + 9 = (x + 3)^2$ $x^2 + bx + \left(\frac{b}{2}\right)^2 = \left(x + \frac{b}{2}\right)^2$
The expression under the radical symbol, $b^2 - 4ac$, in the Quadratic Formula The value of the discriminant of the equation $3x^2 - 2x - 7 = 0$ is $b^2 - 4ac = (-2)^2 - 4(3)(-7) = 88.$	An example that proves that a general statement is not true *Conjecture*: Every whole number ending in 6 evenly divides 3. *Counterexample*: 16 does not evenly divide 3.
A nonlinear equation that can be written in the standard form $ax^2 + bx + c = 0$, where $a \neq 0$ $x^2 + 4x = 12$ $-x^2 + 1 = 2x$	Radicals with the same index and radicand $3\sqrt{11}$ and $5\sqrt{11}$ $4\sqrt[3]{x}$ and $5\sqrt[3]{x}$
An expression that contains a radical $\sqrt{50} - 2$ $\sqrt{64x^3}$	The real solutions of the quadratic equation $ax^2 + bx + c = 0$ are $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$, where $a \neq 0$ and $b^2 - 4ac \geq 0$. To solve $2x^2 + 13x - 7 = 0$, substitute 2 for *a*, 13 for *b*, and –7 for *c* in the Quadratic Formula. $x = \frac{-13 \pm \sqrt{13^2 - 4(2)(-7)}}{2(2)} \rightarrow x = \frac{1}{2}$ and $x = -7$

Vocabulary Flash Cards

rationalizing the denominator *Chapter 9 (p. 468)*	**simplest form** *Chapter 9 (p. 466)*

Vocabulary Flash Cards

A radical that has no radicands with perfect *n*th powers as factors other than 1, no radicands that contain fractions, and no radicals that appear in the denominator of a fraction $\sqrt{27} = 3\sqrt{3}$ $\frac{2}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$	To eliminate a radical from the denominator of a fraction by multiplying by an appropriate form of 1 $\frac{1}{\sqrt{10}} = \frac{1}{\sqrt{10}} \bullet \frac{\sqrt{10}}{\sqrt{10}} = \frac{\sqrt{10}}{\sqrt{100}} = \frac{\sqrt{10}}{10}$ $\frac{\sqrt{2}}{\sqrt{3n}} = \frac{\sqrt{2}}{\sqrt{3n}} \bullet \frac{\sqrt{3n}}{\sqrt{3n}} = \frac{\sqrt{6n}}{\sqrt{9n^2}} = \frac{\sqrt{6n}}{3n}$