

KYAE STANDARDS for MATHEMATICS

Reference Glossary

absolute value – $| \quad |$ (magnitude) the distance from a number to zero on the number line; it is neither positive nor negative

Ex: $|-2|=2$ and $|+2|=2$

acute angle – an angle that measures greater than 0° but less than 90°



acute triangle – a triangle in which all three of its angles are acute



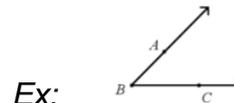
adjacent angles – angles that have a common side and a common vertex

algebraic expression – the translation of a real-world situation into a mathematical expression.

Expressions have numerical value, but no equal sign. Equations are sometimes confused with expressions.

algebraic notation – symbols used in algebra

angle - two lines that meet at an endpoint called a vertex. An angle can be named by the three letters that form it or by the letter that is at its vertex.



area – the amount of surface inside a region, measured in square units

associative property- a mathematical rule stating that when more than two numbers are added or multiplied, the result will be the same no matter how the numbers are grouped

axiom – a rule or a law that is known to be true

bar graphs – graphs that display data using horizontal or vertical bars to compare numbers (see Appendix for examples)

base – the number being multiplied in a power, e.g. 4 in 4^2

bias – distortion of data that arises from the way that the data are collected; the extent to which a measurement, sampling, or analytic method systematically underestimates or overestimates the true value of an attribute

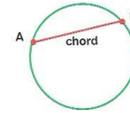
capacity – the volume of a container in terms of liquid measurement; the amount of liquid that a container can hold

causation – the production of an effect by a cause; causation implies correlation but correlation does not imply causation

Celsius - a temperature scale that places the freezing point for water at 0 degrees and the boiling point at 100 degrees (100 degrees apart)

centimeter - a metric unit of length equal to one hundredth of a meter

chord - a line segment joining two points on a circle or curve



Ex:

circle graphs – also known as pie chart, a diagrammatic representation of a group shown as a circle divided into sections by straight lines from its center with areas proportional to the relative size of the quantity represented (see Appendix for examples)

circumference – the distance around a circle; the perimeter of a circle

coefficient – the number part of the terms with variables, e.g. in $4x^2 + 3y + 7xy + 2$, the coefficient of the first term is 4, the coefficient of the second term is 3, and the coefficient of the third term is 7. If a term consists of only variables, its coefficient is 1.

common fractions, decimals, and percents – parts of a whole which are frequently used in everyday life: $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{10}$, $\frac{1}{5}$, .50, .25, .75, .10, .20, 50%, 25%, 75%, 10%, 20%.

commutative property – a mathematical rule stating that the order in which numbers are added or multiplied does not change the sum or product

complementary angles – two angles for which the sum of their measures is 90°

composite – a positive integer that can be divided evenly by numbers other than 1 or itself

compound interest – accumulated interest which is added back to the principal of a loan, increasing the balance of the loan according to the time frame in which the interest is compounded, e.g. a loan of \$100 principal and 5 % interest compounded monthly would have a balance of \$105 at the end of the first month

cone – a 3-dimensional figure with a circular base and sides that meet at a point



Ex:

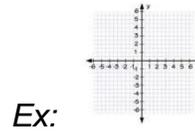
congruent – \cong having the same shape and size

constant function – a function whose values do not vary but are “constant”; the graph of a constant function is a horizontal line

constant rate of change – the constant slope of a linear function’s straight-line graph

converse – see Pythagorean Theorem

coordinate grid – a set of points formed by a grid with a horizontal (x-) and a vertical (y-) axis



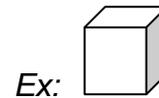
coordinates – on a map, the degrees of latitude and longitude used to specify an exact location

correlation – the degree to which two mathematical or statistical variables are associated

corresponding sides – the matching sides of similar figures

cosine – (cos) for an acute angle in a right triangle, the trigonometric function or ratio: $\cos = \text{adjacent side/hypotenuse}$

cube – a number multiplied by itself three times: $5 \times 5 \times 5$, represented by the exponent 3: 5^3 , raised to the third power; a six-sided figure in which each side is the same-sized square



customary system of measures – the measurement system commonly used in the United States; e.g. feet, miles, pounds, and ounces

cylinder – a 3-dimensional figure with two congruent circular bases and straight sides



data – information (often numerical) that is collected and analyzed

data set – a collection of related information

decagon – a 2-dimensional figure with 10 sides and 10 angles

decimal – a number such as 2.5 that contains a decimal point

degree – symbol ($^{\circ}$) used in geometry as a measurement for angles

denominator – the bottom number of a fraction. The denominator shows the number of parts into which a whole is divided.

dependent probability – an event in which the outcome is affected by the outcome of an earlier event

diagonal – a line segment drawn between the vertices of two non-adjacent sides of a figure that has four or more straight sides

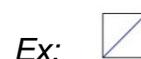


diagram – a graphic representation of an algebraic or geometric relationship

diameter – a line segment drawn through the center of a circle connecting two points on the circle; twice the length of the radius



dimension – a measure of spatial extent, especially width, height, or length

direct variation – a relationship between two variables wherein their ratio remains constant; an equation or function expressing such a relationship

dispersion – the degree of scatter of data, usually about an average value, such as the median

distributive law of multiplication over addition and subtraction (also called distributive property) - a mathematical rule stating that when a value is being multiplied by a quantity in parentheses, that value can be multiplied by each variable or number within the parentheses and then take the sum or difference: for all numbers a , b and c , $a(b + c) = ab + ac$ and $a(b - c) = ab - ac$

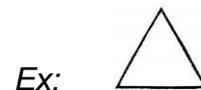
distributive property – see distributive law of multiplication

divisibility – the capacity of being evenly divided, without a remainder

domain - the set of all possible values of an independent variable of a function

equation - a mathematical statement that two expressions, usually divided by an equals sign, are of the same value, e.g. $3 + 2 = 5$

equilateral triangle - a triangle in which all three sides have equal lengths



equivalent fractions – fractions that have the same value; fractions that are equal

evaluate – to calculate the numerical value of

evaluate an expression – substitute known or given values for the variables in an algebraic expression and perform the operations (in the order of operations) to obtain the solution

experimental probability – the likeliness that an event will occur based on the number of trials: the ratio of the number of times the event occurs to the total number of trials

exponent – a raised number to the right of another number that tells how many times the base is to be used as a factor, e.g., in $2^3 = 2 \times 2 \times 2 = 8$, the exponent is 3, indicating that 2 is repeated as a factor three times

exponential function – a function that has a variable as an exponent and a positive number not equal to zero for the base, such as $f(x) = 2^x$

exponential growth – a mathematical change that increases without limit based on an exponential function, e.g. a savings account collecting compound interest

expression – a mathematical statement that may use numbers, variables, or both but no equal sign

factors – numbers or algebraic expressions that are multiplied together (e.g., 3 and 4 are factors of 12; 2 and x are factors of $2x$)

Fahrenheit – a scale used in the U.S. to measure temperature; on the Fahrenheit scale the freezing point for water is 32 degrees and the boiling point is 212 degrees (180 degrees apart)

formula – a group of symbols that make a mathematical statement; an equation showing a mathematical relationship in which the letters stand for specific kinds of quantities

fractions – a way to show part (the numerator or top number) of a whole (the denominator or bottom number); digits grouped above and below a division bar; a ratio Ex: $\frac{1}{2}, \frac{5}{8}, \frac{9}{12}$

function - an expression, rule, or law in math that defines a relationship between one variable (independent variable) and another variable (dependent variable), where for each possible “input”, some “output” is produced

functional notation – notation used to express a function, often the letter f as in $f(x) = 2x + 4$, where $2x + 4$ would be substituted for x to evaluate an expression ; other letters rather than f can be used. Function notation should not be treated as variables in other parts of algebra.

graph - a diagram showing the relationship of quantities, especially such a diagram in which lines, bars, or proportional areas represent how one quantity depends on or changes with another

graph – a collection of points and lines

greatest common factor (GCF) - the largest factor that 2 or more numbers have in common

half-plane - in geometry, a planar region consisting of all points on one side of an infinite straight line, and no points on the other side. If points on the line are included, then it is called a closed half-plane; if the points on the line are not included, then it is called an open half-plane

heptagon – a 2-dimensional figure with 7 sides and 7 angles

hexagon – a 2-dimensional figure with 6 sides and 6 angles

hypotenuse – the longest side of a right triangle, opposite the right angle

improper fractions – fractions with a value equal to or greater than one; fractions in which the numerator is equal to or greater than the denominator, e.g. $\frac{11}{5}$

independent probability – an event in which the outcome is not affected by the outcome of an earlier event

indirect variation – a relationship between two variables where as one quantity goes up, the other goes down with their product remaining the same; also called inverse variation

inequality – \neq in algebra, a statement indicating that the value of one quantity or expression is not equal to another

inference – the act of passing from statistical sample data to generalizations usually with calculated degrees of certainty

in-out table – a data table in which input and output are generated according to a rule

inscribed figure – a figure that is drawn inside another figure

integer – any positive or negative whole number or zero

integer exponents – positive or negative integers, or zero, used as exponents

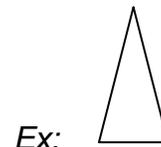
integer root – the greatest integer less than or equal to the actual root of a number, e.g. the integer square root of 40 would be 6 because $6 \cdot 6 = 36 \leq 40$ and $7 \cdot 7 = 49 > 40$

intersecting – coming in contact with or crossing over

inverse operations – operations that reverse the effect of each other, (e.g. subtraction is the inverse operation for addition; division is the inverse operation for multiplication)

irrational numbers – numbers that cannot be expressed as terminating or repeating decimals, such as π or $\sqrt{2}$. The decimal form of an irrational number goes on forever and never repeats.

isosceles triangle – a triangle that has two congruent sides (of the same length); the angles opposite the congruent sides have equal measures



iterative pattern – a sequence or pattern formed by repeating the same procedure, e.g. the Fibonacci sequence

latitude – a geographic coordinate measurement used to denote the location of a place on Earth north or south of the equator; lines of latitude are imaginary horizontal lines shown running east-to-west on maps; latitude is measured in degrees

least common multiple (LCM) – the smallest number, other than zero, that is a common multiple of two or more numbers

like terms – algebraic terms that have the same variables raised to the same powers

line - a collection of points along a straight path that goes on and on in opposite directions; a line has no endpoints

line graphs – graphs that use a line to show changes over time (see Appendix for examples)

line of best fit – a line on a scatter plot that best defines or expresses the trend shown in the plotted points. It is chosen so that the sum of the squares of the distances from the points to the line is a minimum. It also illustrates the correlation (positive, negative, or zero (no) correlation) between the plotted variables.

linear dimension – a measurement of the distance between two points. Since two points define a line, the units of distance are sometimes called "linear" units or dimensions. Examples of linear units include centimeters and inches, meters and feet, kilometers and miles.

linear equations – equations that do not contain a variable to any power (exponent) greater than 1; an equation whose graph is a straight line

linear function – a first-degree polynomial function of one variable

linear growth – growth by the same amount in each time step, shown as a straight line on a graph

linear inequality – an inequality which involves a linear function

longitude – a geographic coordinate measurement used to denote the location of a place on Earth east or west of the Prime Meridian; as shown on maps, lines of longitude are imaginary lines which are perpendicular to the equator and are part of a great circle that passes through the North Pole and the South Pole; longitude is measured in degrees

magnitude – the amount of a quantity; it is never negative

mass – the physical volume or bulk of a solid body

mathematical symbols –

+ addition sign, plus; positive

x multiplication sign, times

< less than

= equals

² and ³ exponents: squared and cubed

∠ symbol used to name angles

≅ is congruent

[] square brackets

- subtraction sign, minus; negative

÷ division sign, divided by

> greater than

≠ not equal to

√ radical sign, indicates square root

ⁿ√ - nth root

~ is similar to

{ } set braces (called curly brackets)

maximum – the largest number in a set; the upper limit of variation

mean - the average of a set of numbers, obtained by dividing the sum of the set by the number of numbers in the set

measures of center – measures of central tendency: mean, median and mode; a value at the center or middle of a data set

median – the middle number of a group or set of numbers arranged in order

metric system of measures – a measurement system used throughout most of the world that is based on the powers of ten (common units are meters, grams, liters, etc.)

minimum – the smallest number in a finite set of numbers; the lower limit of variation

mixed numbers – numbers that contain a whole number and a proper fraction, (e.g., $1\frac{1}{2}$, $1\frac{1}{8}$, $2\frac{3}{5}$)

mode – in a list of data, the number occurring most often

monomial – a polynomial with one term, e.g. $5x^3$, or 8, or $4xy$

multiples – the result of multiplying a given number by the counting numbers (0, 1, 2, 3, etc.)

negative integer – a number that is less than zero

negative slope – the slope of a line that goes down left to right

nonagon – a 2-dimensional figured with 9 sides and 9 angles

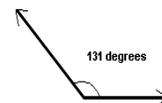
nth root – ($\sqrt[n]{}$) a number that must be multiplied times itself n times to equal a given value, e.g. when n is equal to 3, the n th root would be a cube root

number line- a straight line, theoretically extending to infinity in both positive and negative directions from zero, that shows the relative order of the real numbers

numerator – the top number of a fraction. The numerator indicates the number of equal parts named.

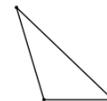
numeric sequence – a sequence such as 1, 5, 9, 13, 17 or 12, 7, 2, -3, -8, -13, -18 which has a constant difference between terms

obtuse angle – an angle that measures more than 90° but less than 180°



Ex:

obtuse triangle – a triangle which has one obtuse angle



Ex:

octagon – a 2-dimensional figure with 8 sides and 8 angles

order of operations – a sequence for performing mathematical operations as illustrated by PEMDAS or the acronym: Please Excuse My Dear Aunt Sally, where:

P: Parentheses. Perform all operations within parentheses first.

E: Exponents. Evaluate exponents.

M/D: Multiply/Divide, working from left to right.

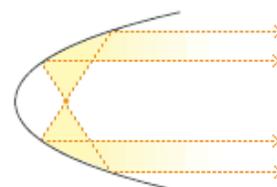
A/S: Add/Subtract, working from left to right.

ordered pair - a pair of numbers that names a point on a coordinate grid; presented in parentheses as (the x-coordinate, the y-coordinate)

origin – the starting point, 0 on a number line, (0,0) on a coordinate grid where the x axis and y axis cross

paired data – data that fall normally into pairs; data that occurs in ordered pairs

parabola – a two-dimensional “U” shaped curve that matches the path a tossed object such as a ball follows; it is formed by the graph of a quadratic equation and its highest or lowest point is called the vertex



Ex:

"Parabola," Microsoft® Encarta® Online Encyclopedia 2009 <http://encarta.msn.com>
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parallel(ism) (\parallel) – extending in the same direction, everywhere equidistant, and not meeting, e.g. parallel lines \longleftrightarrow

parallelogram – a four-sided figure with two pairs of parallel sides

EX:



parentheses – in algebra, rounded brackets () used as symbols to designate multiplication or to group things, e.g. $2(4)=2 \times 4$ or $2(3+4)=2 \times 7$

pattern – an arrangement of numbers, shapes or terms which repeats in a predictable manner

pentagon – a 2-dimensional figure with 5 sides and 5 angles

percent – a way of representing part of a whole equal to 100; means “for every 100” or “out of 100”, represented by the symbol %

percentage of decrease – the rate that an amount has decreased over time

percentage of increase – the rate that an amount has increased over time

perfect square – a number that is equal to the square of another number

perimeter – the distance around a flat (2-D) figure; the sum of the lengths of all the sides of a flat figure

perpendicular(ity) (\perp)-standing at right angles to the plane of the horizon; exactly upright, e.g.

perpendicular lines: 

pi (π) – approximately 3.14; pi is the constant ratio of the circumference of a circle to the diameter

pictographs - pictures or symbols used to represent an assigned amount of data

pie chart– (see circle graph)

plane geometric figure – geometric figures in a plane; 2-dimensional figures such as circles, triangles and polygons

point – a single, exact location often represented by a dot

point of origin – the point at which the x-axis and y-axis in a coordinate grid intersect; the point represented by the ordered pair (0,0)

polygons- plane figures with three or more straight sides (e.g. triangles, quadrilaterals, pentagons, hexagons, etc.)



polynomial – the sum or difference of terms which have variables raised to positive integer powers and which have coefficients that may be real or complex numbers, e.g. $x^2 - 2y$, $5p^3r + y$, etc.

positive integer – a number that is greater than zero

positive slope – the slope of a line that goes up left to right

prime – a positive integer that can only be divided evenly by 1 or itself

prism – a three-dimensional geometric figure with ends that are identical polygons and with sides that are parallelograms

probability – the study of the chance of something happening

proper fraction - fraction with a value less than one; a fraction in which the numerator is less than the denominator, e.g. $1/4$

property of one – in multiplication, the product of any number and one is that number ($4 \times 1 = 4$); in division, any number divided by one will equal that number ($4 \div 1 = 4$)

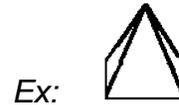
property of zero – the sum or difference of any number and zero is that number ($5 + 0 = 5$, $5 - 0 = 5$); the product of any number and zero equals zero ($5 \times 0 = 0$)

proportion – an equation that compares two equal ratios or fractions, e.g., $2/3 = 8/12$

protractor – a tool used to measure the number of degrees in an angle



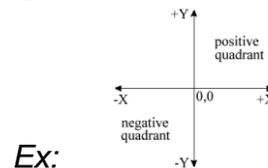
pyramid – a solid figure with a square base and four equal triangular sides that meet at a point



Pythagorean Theorem or relationship – in a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides: $a^2 + b^2 = c^2$

Converse of the Pythagorean Theorem – (the opposite of the Pythagorean Theorem) a triangle in which the square of one side equals the sum of the squares of the other two sides is a right triangle

quadrant – one-fourth of a coordinate grid, formed by the intersecting axes:



quadratic – another name for a polynomial of the 2nd degree (2 is the highest exponent)

quadratic equation – an equation in which one or more of the terms is squared but raised to no higher power, e.g. $ax^2 + bx + c = 0$, where a , b and c are constants

quadratic formula – $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ formula used to solve quadratic equations that can be put into the form $ax^2 + bx + c = 0$

quadratic function - a quadratic function f is a function of the form $f(x) = ax^2 + bx + c$ where a , b , and c are real numbers and are not equal to zero, e.g. $f(x) = -2x^2 + x - 1$ or $f(x) = x^2 + 3x + 2$. The graph of the quadratic function is called a parabola.

quadratic polynomial – a polynomial to the 2nd degree; one or more of the terms is squared but raised to no higher power, e.g. $ax^2 + bx + c = 0$, where a , b and c are constants

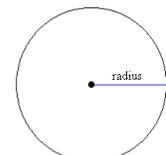
quadrilateral – a 2-dimensional figure with four sides, e.g. rectangle, square, rhombus, parallelogram, trapezoid

quantitative – based on the amount or number of something

quantitative information – information which involves or is based on any type of measurement

radical – the $\sqrt{\quad}$ symbol, which is used to indicate square roots or n th roots

radius – a line segment connecting the center of a circle to a point on the circle; $\frac{1}{2}$ the length of the diameter:



Ex:

range – the difference between the lowest number and the highest number in the set, e.g. in the data set 4,5,8,9,9,12, the range is $12 - 4$, or 8

rate – a number describing change, calculated by computing a ratio of two quantities

rate of change – the speed at which a variable changes over a specific period of time

ratio – a comparison of two like quantities (amounts expressed in the same units), e.g. 1:3, 1 to 3, $1/3$

rational exponents – exponents composed of rational numbers (also called fractional exponents) where the numerator is an integer exponent and the denominator is an n th root

$$\text{Ex: } a^{m/n} = \sqrt[n]{a^m} \text{ or } (\sqrt[n]{a})^m$$

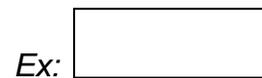
rational expression – an algebraic expression that can be written as a ratio, usually a polynomial divided by a polynomial, e.g. $\frac{2xy + y^2}{2x^2 - 1}$

rational numbers – the set of all real integers and fractions. Any rational number can be written as the ratio, or quotient, of two integers, e.g. fractions ($\frac{2}{3}$), terminating decimals (.75), and repeating decimals (.666...).

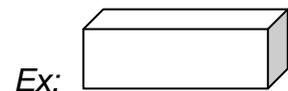
ray – a part of a line having only one endpoint; one side of an angle

real numbers – the set of numbers which describe real-world quantities such as amounts, distances, age, temperature, and so on. A real number can be an integer, a fraction, or a decimal. They can also be either rational or irrational.

rectangle – a parallelogram having four right angles



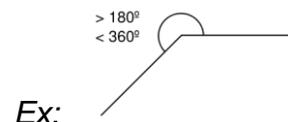
rectangular solids – three-dimensional figures in which all sides are rectangles and all corners are square



recursive pattern – pattern or sequence wherein each successive term can be computed from some or all of the preceding terms by an algorithmic procedure

reflection – a transformation in which the figure does not change size but is simply flipped over a line of reflection; a mirror image

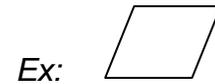
reflex angle – an angle that measures more than 180° but less than 360°



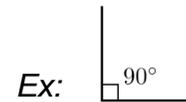
regularity – a property of polygons: the property of having equal sides and equal angles

relation – any set of ordered pairs

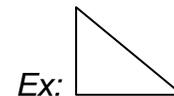
rhombus – a parallelogram that has four equal sides



right angle (\perp) – an angle that makes a “square corner” , measuring exactly 90°



right triangle – a triangle in which one angle is a right angle



root – term used to indicate a number that when repeatedly multiplied by itself results in a second number

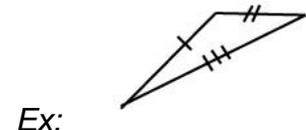
rotation – a transformation that changes the orientation of a geometric figure relative to a certain axis

sampling – a small part, number, or quantity of something that has been taken or selected as a sample

scale factor – the ratio of any two corresponding lengths in two similar geometric figures

scalene triangle – a triangle in which no two sides (or angle) are congruent (of the same length)

Scalene: All 3 Sides Are Different



scatter plot – a graph of paired data in which the data values are plotted as (x,y) points; a basic graphic tool that illustrates the relationship between two variables: they are used to determine what happens to one variable when another variable changes value (see Appendix for examples)

scientific notation – a way of writing very large numbers and very small decimals in which the numbers are expressed as the product of a number between 1 and 10 and a power of 10

Ex: $68,000,000 = 6.8 \times 10^7$

segment - a part of a line having two endpoints



sequence – a series of repeated patterns

set braces – { } notation used to indicate a collection of objects of any sort, e.g. numbers, geometric figures or functions; braces are also used as grouping symbols in algebra

shape – the outline or contour of a figure

signed numbers – positive and negative numbers

similar – \sim a description of geometric figures that have different sizes but the same shape or angular measurements

similarity – the relationship between two- or three-dimensional figures having the same shape but not necessarily the same size

simple interest – interest paid on the original principal only, not on the interest accrued; the formula for calculating simple interest is: $\text{interest} = \text{principal} \times \text{rate} \times \text{time}$ or $i=prt$

simplest form – used to describe a fraction in which there is no number other than 1 that will divide evenly into both the numerator and the denominator

simplify – to convert a mathematical expression such as a fraction or equation to a simpler form by removing common factors or regrouping elements

sine – (\sin) for an acute angle in a right triangle, the trigonometric function or ratio: $\sin = \frac{\text{opposite side}}{\text{hypotenuse}}$

slope – the ratio of rise to run that results in a number that measures the steepness of a line; $\text{rise over run} = \frac{y_2 - y_1}{x_2 - x_1}$ where (x_1, y_1) and (x_2, y_2) are two points on a line

solid geometric figures – three-dimensional geometric figures, e.g. pyramids, prisms, cylinders, cones, spheres, etc.

solution set - any and all value(s) of the variable(s) that satisfies an equation, inequality, system of equations, or system of inequalities

sphere – a 3-dimensional surface, all points of which are equal distance from the center

spread – the numeric difference between the lowest and the highest values in a set of data

spreadsheet – a computer application displaying a grid of multiple cells arranged in rows and columns, simulating a paper worksheet

square – a number multiplied by itself: 5×5 , represented by the exponent 2: 5^2 , raised to the second power; a parallelogram having 4 right angles and sides of equal length:



square brackets – [] grouping symbols used in algebra to indicate that the innermost operation should be carried out first

square pyramid – (see pyramid)

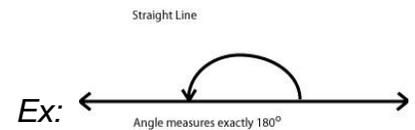
square root – one of the two equal factors of a number. The symbol for square root is $\sqrt{\quad}$. The square root of 16 is 4, therefore, $\sqrt{16} = 4$

squaring – multiplying a number by itself, represented by the exponent 2; raised to the second power

Ex: 4^2

standard deviation – a clustering of the data around the mean, e.g. 7, 8, 9 – the mean is 8; 4, 8, 12 – the mean is also 8, but the standard deviation has changed; the square root of the variance

straight angle – an angle that measures exactly 180°



substitution – in algebra, the act of replacing a variable such as x or y with its value

summary statistics – a statistical summary of a set of observations, often described by measures of central tendency (mean, median, mode) or measures of statistical dispersion (variance, range, and standard deviation)

supplementary angles – two angles for which the sum of their measures is 180°

surface area – the total area of the exterior surface of a solid

symmetry – the state of having two halves that are mirror images of each other

systems of equations – (simultaneous equations) a collection of two or more equations containing a same set of unknowns, e.g. $x^2 + y^2 = 2$ and $x + y = 1$

table – a display of data organized in rows and columns (see Appendix for examples)

tangent – (\tan) for an acute angle in a right triangle, the trigonometric function or ratio: $\tan = \frac{\text{opposite side}}{\text{adjacent side}}$

term – in algebra, a number, variable or the product of a number and variable(s)

tessellation - a pattern made of identical shapes that fit together without overlapping or leaving any spaces

theorem – the last statement of a formal proof; a mathematical assertion that can be proven

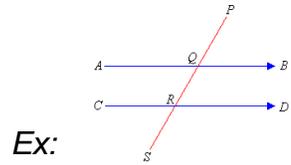
theoretical probability – the likelihood that an event will occur based on all the possible outcomes:
 $\text{Probability} = \frac{\text{Number of Favorable Outcomes}}{\text{Total Number of Possible Outcomes}}$

three-dimensional shape – a shape having three dimensions, usually length, width and depth

transformation – in geometry, the change in position of a shape on a coordinate plane, moving it from one place to another. There are three basic transformations: flip (reflection), slide (translation), and turn (rotation).

translation – a transformation that refers only to a change in the position of a geometric figure, without a change in scale or rotation

transversal – a line that crosses at least two other lines

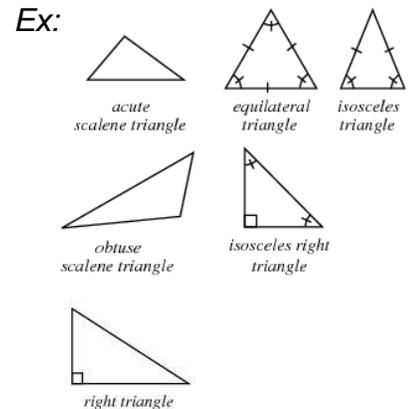


trapezoid – a four-sided polygon having exactly one pair of parallel sides



trend – a continuing change in the same general direction

triangle – a three-sided polygon. Every triangle has three sides and three angles, some of which may be the same



trigonometric function – a function of an angle expressed as the ratio of two of the sides of a right triangle that contains that angle, e.g. sine, cosine, tangent

trigonometry – the study of the relationship between pairs of sides in right triangles

two-dimensional shape – a shape having only two dimensions, usually length and width

undefined slope – the slope of a vertical line

variable – a letter used to represent an unknown amount

variance – a measure of the dispersion of a set of data points around their mean value; the square of the standard deviation

vertex – the point at which two or more line segments or sides of a figure meet; the point at which the two rays that form an angle meet

vertical angles – non-adjacent angles that share the same vertex, formed when two lines intersect, or cross; also called opposite angles

volume – *the amount of space taken up or enclosed by a three-dimensional object, expressed in cubic units*

x-axis – *the horizontal axis in a 2-dimensional coordinate system such as a graph*

x-coordinate – *the first number in an ordered pair, the distance from the origin along the x-axis*

x-intercept – *the point at which a straight line crosses the x axis of a graph*

y-axis – *the vertical axis in a 2-dimensional coordinate system such as a graph*

y-coordinate – *the second number in an ordered pair, the distance from the origin along the y-axis*

y-intercept – *the point at which a straight line crosses the y axis of a graph*

zero – *the point on a scale from which positive or negative numerical quantities can be measured; indicating an initial point or origin; having no measurable or otherwise determinable value*

zero exponent - *any number not equal to zero that is raised to the zero power is equal to one:
where $x \neq 0$, $x^0 = 1$*

zero slope – *the slope of a horizontal line*

APPENDIX

TABLE

table *a display of data organized in rows and columns*

Calories Used per Hour in Common Physical Activities		
Moderate Physical Activity	Approximate Calories / 30 minutes for a 154 lb person¹	Approximate Calories / 1 hour for a 154 lb person¹
Hiking	185	370
Light Gardening/Yard Work	165	330
Dancing	165	330
Golf (walk and carrying clubs)	165	330
Bicycling (<10 mph)	145	290
Walking (3.5 mph)	140	280
Weight Lifting (general light workout)	110	220
Stretching	90	180
Vigorous Physical Activity	Approximate Calories / 30 minutes for a 154 lb person¹	Approximate Calories / 1 hour for a 154 lb person¹
Running/jogging (5 mph)	295	590
Bicycling (>10 mph)	295	590
Swimming (slow freestyle laps)	255	510
Aerobics	240	480
Walking (4.5 mph)	230	460
Heavy Yard Work (chopping wood)	220	440
Weight Lifting (vigorous effect)	220	440
Basketball (vigorous)	220	440

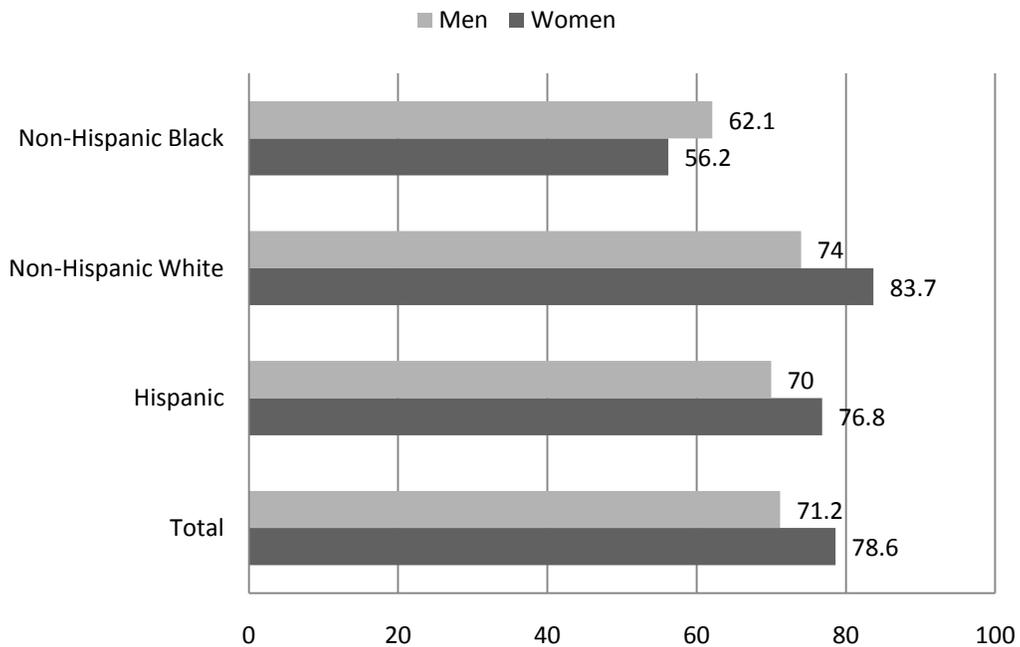
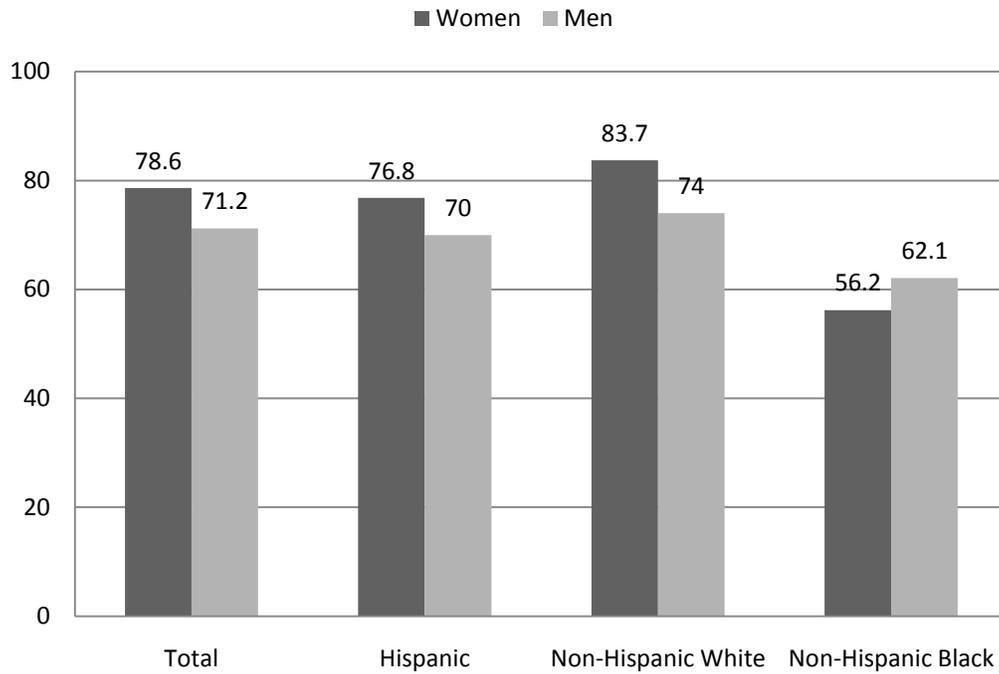
¹Calories burned per hour will be higher for persons who weigh more than 154 lbs (70 kg) and lower for persons who weigh less. Source: Adapted from Dietary Guidelines for Americans 2005, page 16, Table 4 (<http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter3.htm#table4>).

GRAPHS

graphs diagrams showing the relationship of quantities, e.g. bar graphs, line graphs, circle or pie graphs:

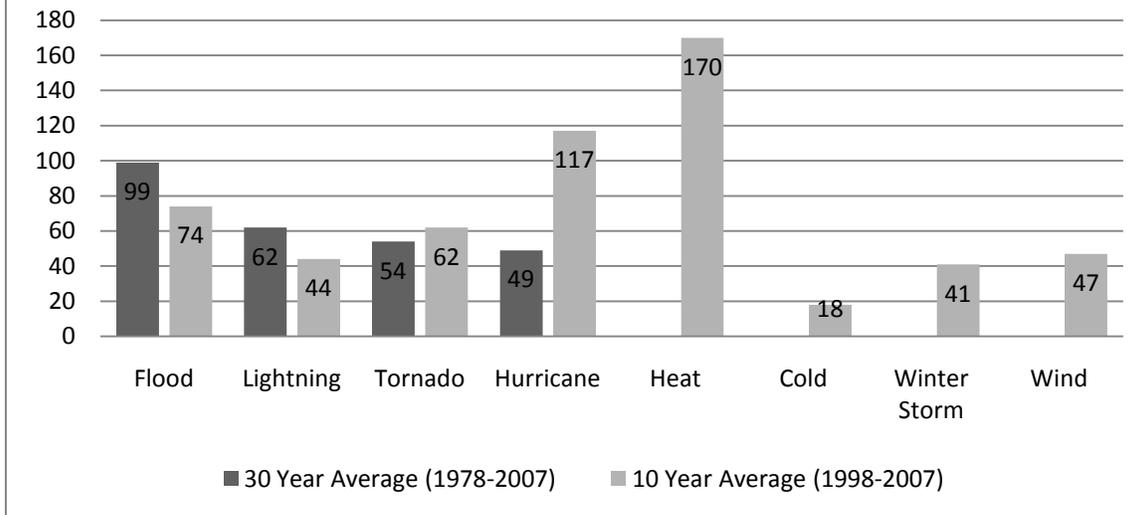
bar graph graph that displays data using horizontal or vertical bars to compare numbers

Percentage of men and women 25-44 years of age who have ever been married, by race and Hispanic origin: United States, 2002



Source: CDC/NCHS, National Survey of Family Growth, Cycle 6

Natural Hazard Statistics Weather Fatalities



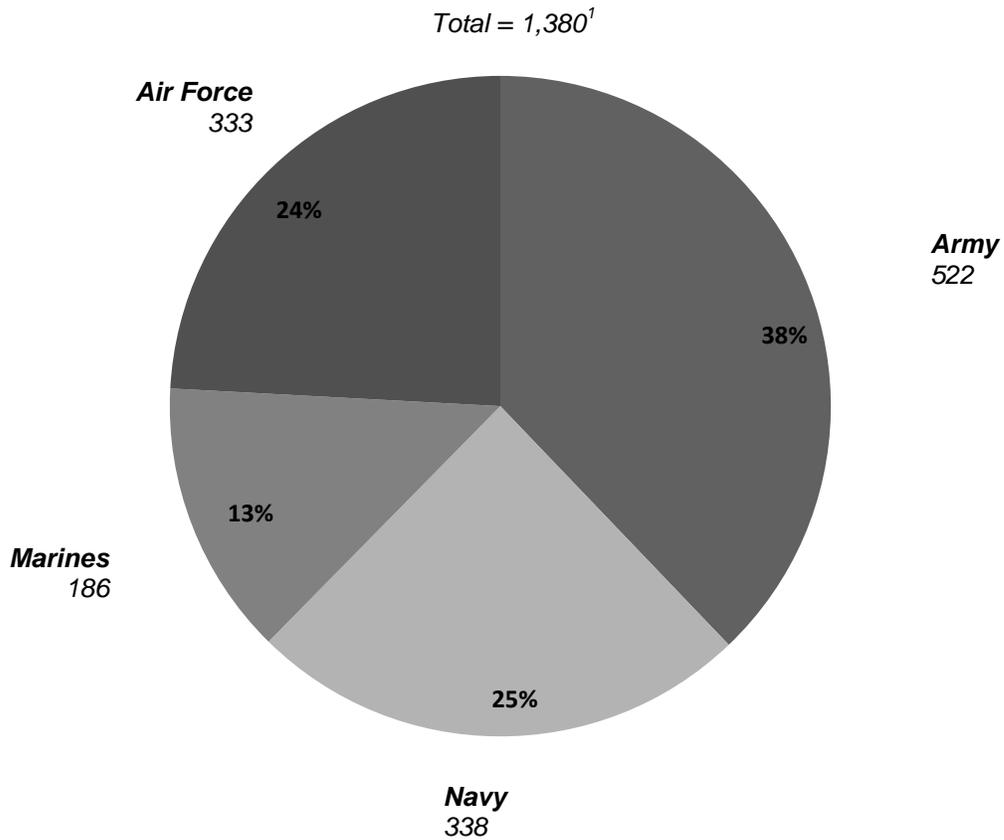
The U.S. Natural Hazard Statistics provide statistical information on fatalities, injuries and damages caused by weather related hazards. These statistics are compiled by the Office of Services and the National Climatic Data Center from information contained in *Storm Data*, a report comprising data from NWS forecast offices in the 50 states, Puerto Rico, Guam and the Virgin Islands.

Source: NOAA's National Weather Service Office of Climate, Water, and Weather Services, Last updated June 11, 2009

circle graph also called **pie chart**, graph that shows a whole amount (100%) divided into parts

Department of Defense Manpower - 2007

(in thousands)

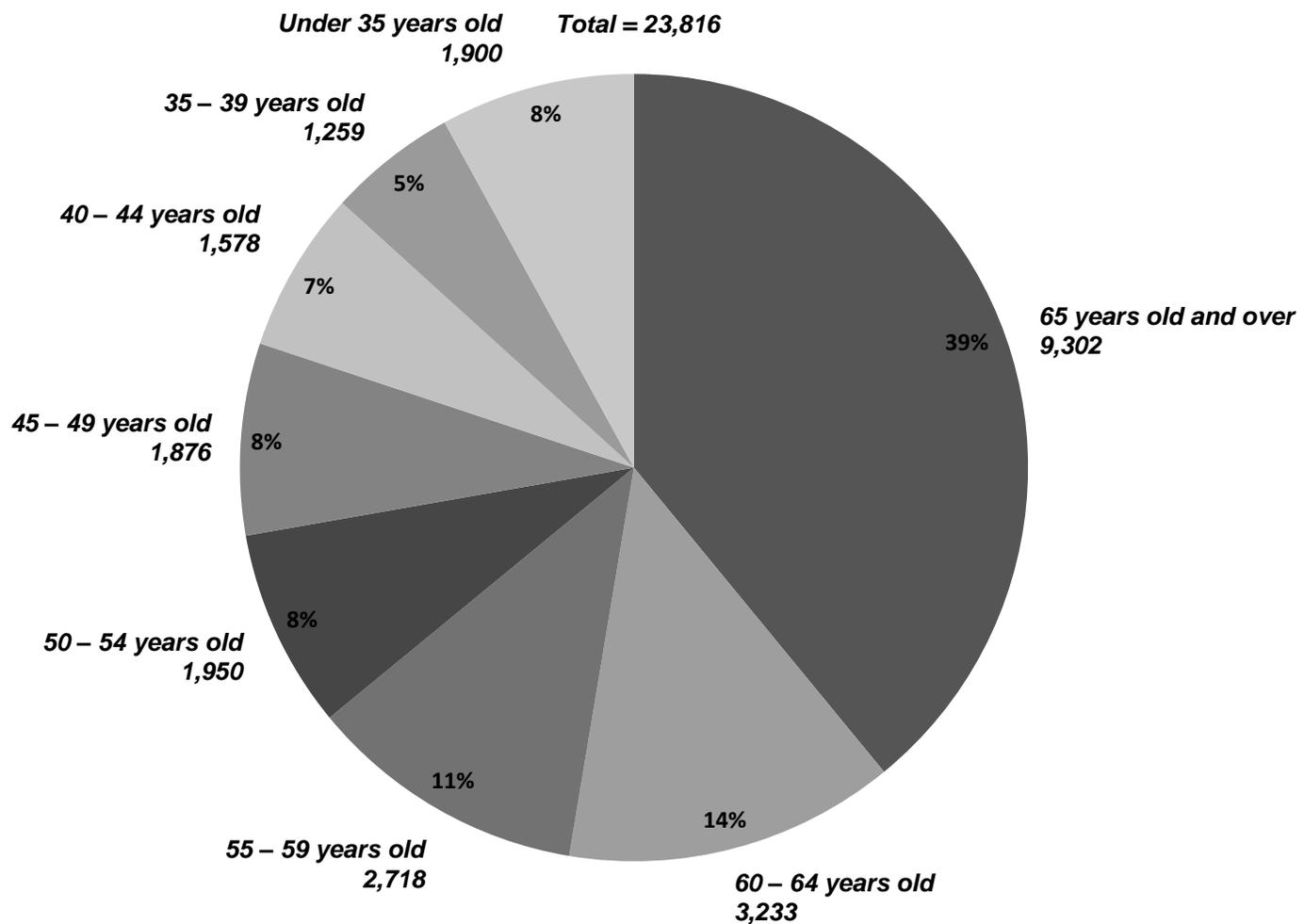


¹ Includes National Guard, Reserve, and retired personnel on extended or continuous active duty. Excludes Coast Guard.

Source: Chart prepared by U.S. Census Bureau. Statistical Abstract of the United States: 2009

Living Veterans by Age - 2007

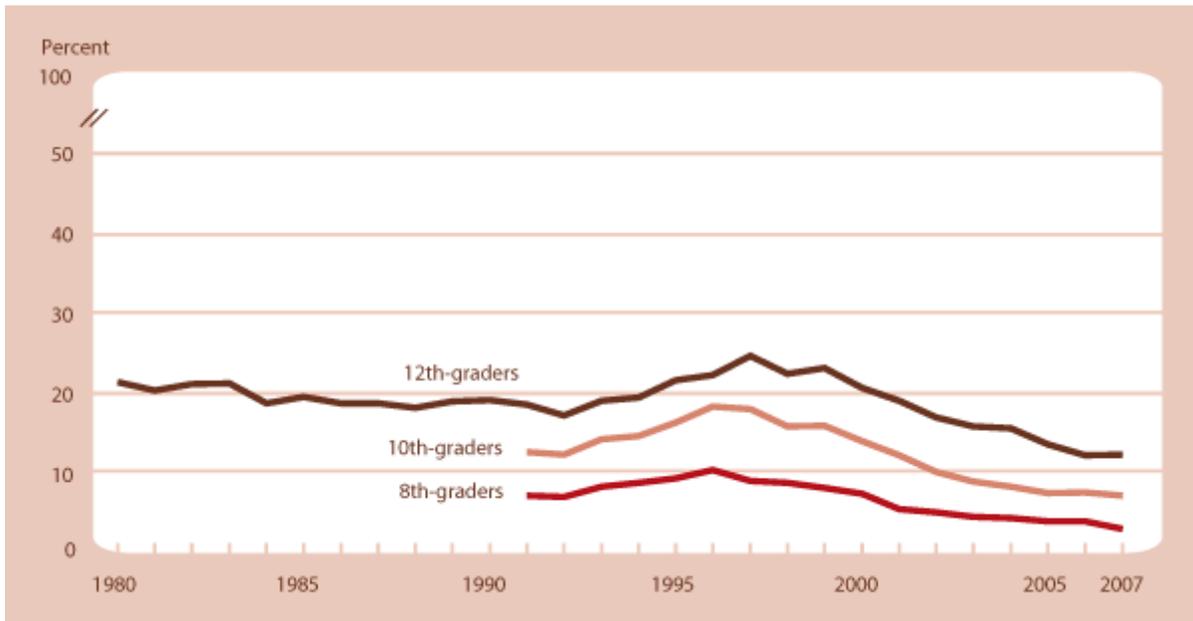
(in thousands)



Source: Chart prepared by U.S. Census Bureau. Statistical Abstract of the United States: 2009

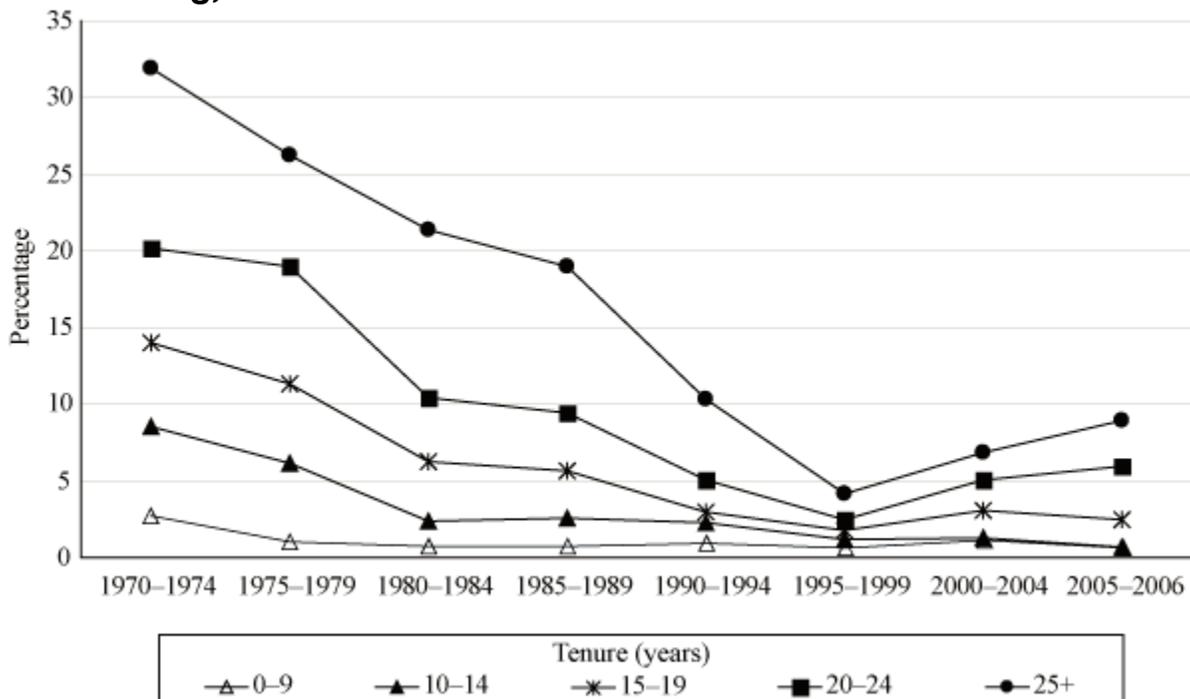
line graph *graph that uses a lines to show changes over time*

Figure 10 Percentage of 8th-, 10th-, and 12th-grade students who reported smoking cigarettes daily over the past 30 days by grade, 1980–2007



SOURCE: National Institutes of Health, National Institute on Drug Abuse, [Monitoring the Future Survey](#)

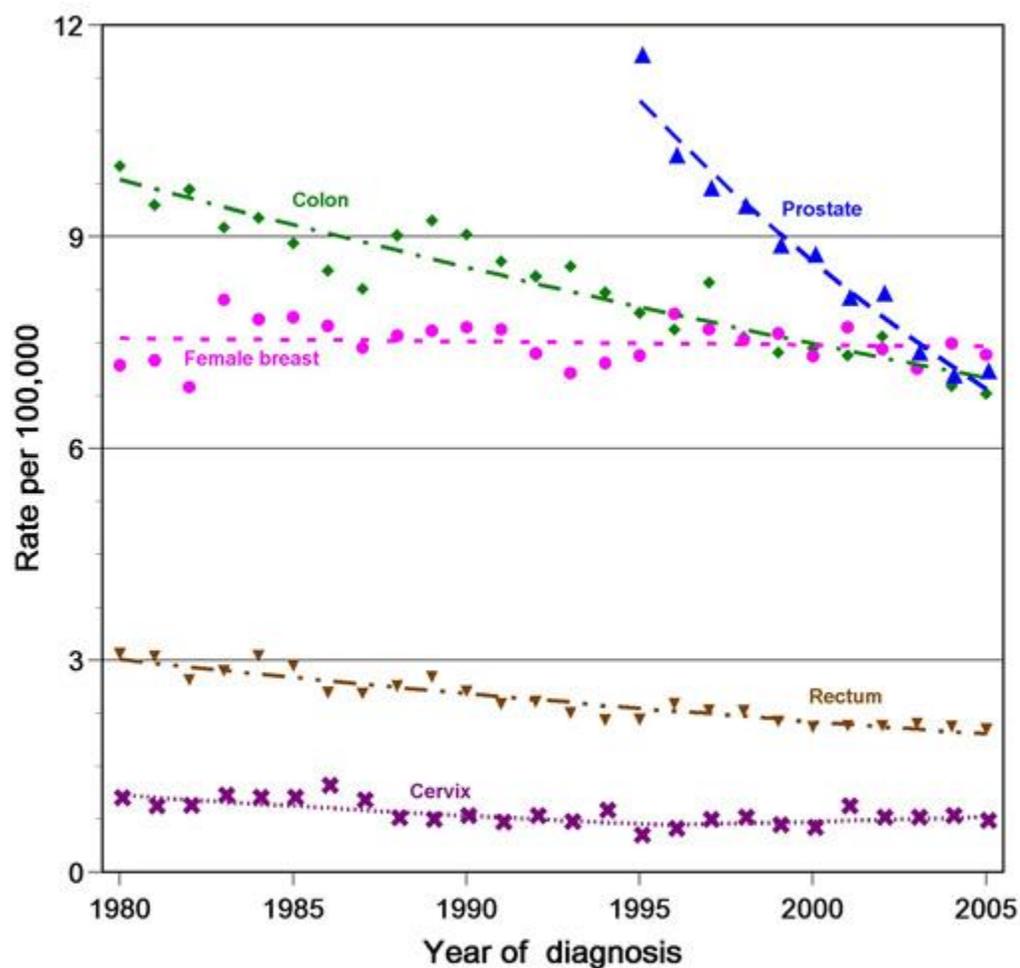
Percentage of examined miners with coal workers' pneumoconiosis (category 1/0+) by tenure in mining, 1970–2006



Source: NIOSH Coal Workers' X-ray Surveillance Program (CWXSPP)

scatter plot a graph of paired data in which the data values are plotted as (x,y) points

Figure D5. Rates of new cases of late-stage disease: 1980-2005



1. Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas

<http://seer.cancer.gov/registries/terms.html>.

2. Data are age-adjusted to the 2000 standard using age groups:<1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+. Analysis uses the 2000 Standard Population [Census P25-1130] as defined by NCI <http://seer.cancer.gov/stdpopulations/>.