

KYSU STANDARDS for MATHEMATICS

Level 6 Student Glossary

absolute value (| |) *the distance from a number to zero on the number line; it is neither positive nor negative, e.g. $|-2| = 2$ and $|+2| = 2$*

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*

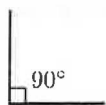
angles *two lines that meet at an endpoint called a vertex. An angle can be named by the three letters that form it or by the letter that is at its vertex*

Types of angles include:

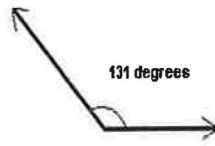
acute angle *an angle measuring between 0 and 90 degrees*



right angle *an angle measuring 90 degrees*

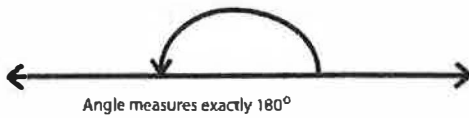


obtuse angle *an angle measuring between 90 and 180 degrees*

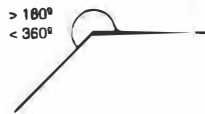


straight angle *an angle measuring 180 degrees*

Straight Line



reflex angle *an angle measuring more than 180 but less than 360*



degrees

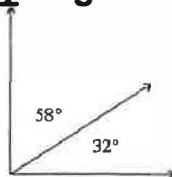
Angle relationships include:

congruent angles *angles whose measurements are equal*



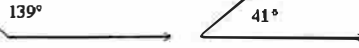
complementary angles *two angles whose measurements add up to*

90 degrees



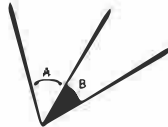
supplementary angles two angles whose measurements add up to

180 degrees



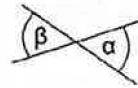
adjacent angles angles that have a common side and a common

vertex



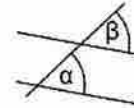
vertical angles angles that are opposite each other when two lines

cross (also called **opposite** angles)



corresponding angles angles in the same position in relation to a

line (transversal) cutting across two parallel lines



area the amount of space inside the boundary of a 2-dimensional figure, expressed in square units

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

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

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; in data interpretation causation is often confused with correlation

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

circumference the perimeter of a circle

coefficient the number part of the terms with variables, e.g. in $4x$, the coefficient is 4

complex numbers numbers that can be written as the sum or difference of a real number and an imaginary number, e.g. $3 - 2i$

compound interest accumulated interest which is added back to the principal of a loan, increasing the balance of the loan according to how often 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

congruent \cong the same shape and size

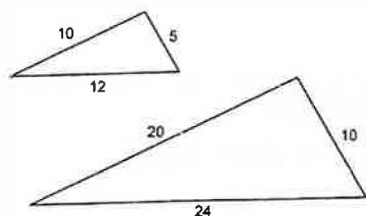
constant function a function whose values do not vary but are "constant"; the graph of a constant function is a horizontal line

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

converse of the Pythagorean Theorem (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

correlation the degree to which two mathematical or statistical variables are associated, often confused with causation

corresponding sides the matching sides of similar figures



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

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

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

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

evaluate an expression replace variables in an expression with specified values and then perform the 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 small raised number at the right of a base number (3 in 4^3) that tells how many times the base number is multiplied by itself ($4 \times 4 \times 4$)

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, and does not contain the equals sign (=) or any type of inequality

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

function an expression, rule, or law in math that defines a relationship between one variable (independent variable) and another variable (dependent variable); a rule that takes inputs and produces outputs

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 using lines, bars or proportional areas to show a relationship of quantities; a collection of points and lines

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

horizontal  parallel to the horizon; flat and level

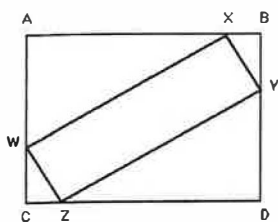
independent probability an event in which the outcome is not affected by the outcome of an earlier event

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

inscribed figure a figure that is drawn inside another figure



integer any positive or negative whole number or zero

integer exponent a positive or negative integer, or zero, used as an exponent

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 $7 \cdot 7 = 49 > 40$

inverse operation the opposite operation, e.g. addition and subtraction are inverse operations

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.

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

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 letters raised to the same powers

line of best fit a line on a scatter plot that best defines or expresses the trend shown in the plotted points

linear dimension a measure of the distance between two points, also called linear units, e.g. feet, inches, meters, centimeters

linear equation 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

magnitude (absolute value) the amount of a quantity; it is never negative

mass the physical volume or bulk of a solid body

mathematical symbols signs used to indicate a mathematical relation or operation, e.g. $=, \neq, \sqrt{}, ^2, ^3, \approx, \geq, \leq, \pi, (), \parallel, \perp, ^\circ, \bot, |, \angle, ^n\sqrt{}, \cong, \sim, [], \{ \}$

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

measurement systems:

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

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

measures of central tendency a value at the center or middle of a data set (also known as measures of center): mean, median and mode

median the middle number of a set of numbers arranged in order

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

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

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

multiple the result of multiplying a given number by the counting numbers (0, 1, 2, 3, and so on)

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

nth root $\sqrt[n]{}$ a number that must be multiplied times itself n times to equal a given value

order of operations (PEMDAS) a sequence for performing mathematical operations

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

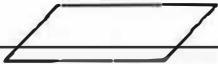
ordered pair a pair of numbers that names a point on a coordinate grid; presented in parentheses as (the x-coordinate, the y-coordinate)

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 occur in ordered pairs

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

parallel (\parallel) extending in the same direction, everywhere equidistant, and not meeting

parallelogram  a 4-sided figure with 2 pairs of parallel sides

parentheses in algebra, rounded brackets () used as symbols to designate multiplication or to group things

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

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

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

perimeter the distance around a flat (2-D) figure

perpendicular (\perp) standing at right angles to the plane; exactly upright

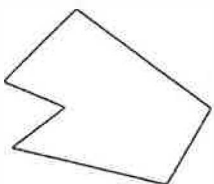
pi approximately 3.14; pi is the constant ratio of the circumference of a circle to the diameter, represented by the symbol π

plane geometric figures geometric figures in a plane; 2-dimensional figures such as circles, triangles, 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)

polygon a 2-dimensional closed figure with three or more straight sides



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.

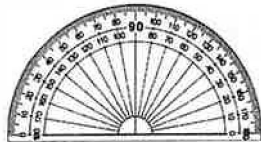
positive slope the slope of a line that goes up left to right

prism a solid figure with parallel congruent bases which are both polygons

probability the chance of something happening

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

angle



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

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 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

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 a 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

quantitative based on quantity or the amount of something

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

range the difference between the lowest number and the highest number in the set

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

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

rational expression an algebraic expression that can be written as a ratio, usually a polynomial divided by a polynomial, e.g. $2xy - y^2$

$$2x^2 - 1$$

rational numbers the set of all real integers and fractions; any number that can be written as a ratio, or quotient, of two integers, e.g. fractions, terminating decimals and repeating decimals.

real numbers all positive and negative numbers and zero; the set of numbers which describe real-world quantities such as amounts, distances, age, temperature, etc. A real number can be an integer, a fraction, or a decimal, rational or irrational

rectangular solids *three-dimensional figures in which all*

sides are rectangles and all corners are square, e.g.



recursive pattern *pattern or sequence wherein each successive term can be computed from some or all of the preceding terms by the same rule of progression throughout the entire sequence*

reflection *see transformation*

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

relation *a set of ordered pairs*

rhombus



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

rotation *see transformation*

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*

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*

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*

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

similar the same shape but different sizes

simple interest interest paid on the original principal only;

simple interest formula: $\text{interest} = \text{principal} \times \text{rate} \times \text{time}$ or $i = prt$

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: $\sin = \text{opposite side} / \text{hypotenuse}$

slope the ratio of rise to run that results in a number that measures the steepness of a line

positive slope the slope of a line that rises from left to right

negative slope the slope of a line that falls from left to right

zero slope the slope of a horizontal line

undefined slope the slope of a vertical line

solid geometric figure any bounded 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

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

square root $\sqrt{}$ a number that when multiplied by itself gives the original number ($\sqrt{9} = 3$ because $3 \times 3 = 9$)

squaring multiplying a number by itself, usually shown as the number and the exponent ² EX: 3^2

standard deviation a measure of how spread out data are; the square root of the variance

summary statistics a statistical summary of a set of observations such as measures of central tendency (mean, median, mode) or measures of statistical dispersion (variance, range, standard deviation)

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.

$$x^2 + y^2 = 2 \text{ and}$$

$$x + y = 1$$

table a display of data organized in rows and columns

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

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 having any gaps

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: $\text{Probability} = \frac{\text{Number of Favorable Outcomes}}{\text{Total Number of Possible Outcomes}}$

transformation a geometric term used to indicate a change in the position of a shape on a coordinate plane, moving it from one place to another. The three basic transformations are:

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

rotation the figure turns around or rotates around one fixed point on the graph

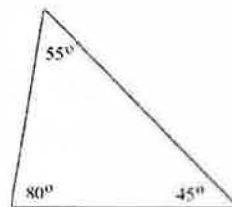
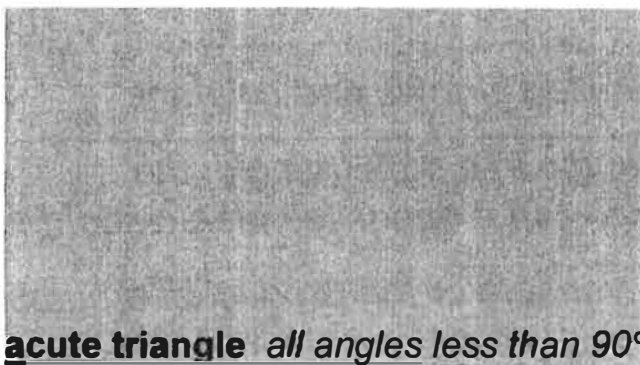
translation every point of the figure moves the same distance in the same direction; the figure simply slides to another place

transversal a line that crosses at least two other lines

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

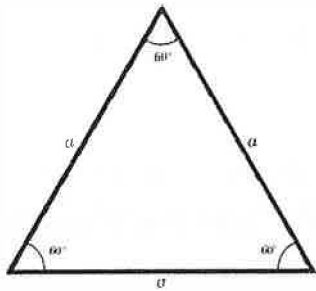
trend a continuing change in the same general direction

triangle a three-sided polygon

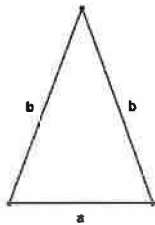


acute triangle all angles less than 90°

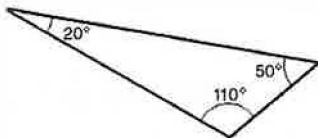
equilateral triangle *equal sides and equal angles (60°)*



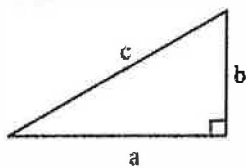
isosceles triangle *two congruent sides (same length)*



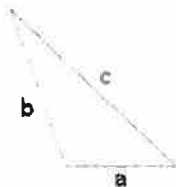
obtuse triangle *an angle greater than 90°*



right triangle *a right (90°) angle*



scalene triangle *no sides equal and no angles equal*



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

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

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

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

APPENDIX

TABLE

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

Styled dataTable Component

In this example the dataTable is styled with custom CSS

Stock #	Model	Description	Odometer	Price↑
57605	Dodge SX 2.0	Loaded/Keyless	28000	14495
58205	Dodge SX 2.0	Loaded/Keyless	19500	15495
57805	Chrysler Sebring Touring	Keyless/Trac Cont	31500	15995
58465	Chrysler Sebring Touring	Keyless/Trac Cont	32500	15995
58455	Chrysler Sebring Touring	Keyless/Trac Cont	34000	16695
58495	Chrysler Sebring Touring	Keyless/Trac Cont	22500	16695
58375	Chrysler PT Cruiser	Cruise/KeylessD	29500	17795
58475	Dodge Grand Caravan	Quads/Rear AC	52000	19895
58285	Dodge Grand Caravan	Sto&Go/Keyless	43500	21695
57965	Chrysler PT Cruiser Convertible	Touring/Loaded	7000	22195

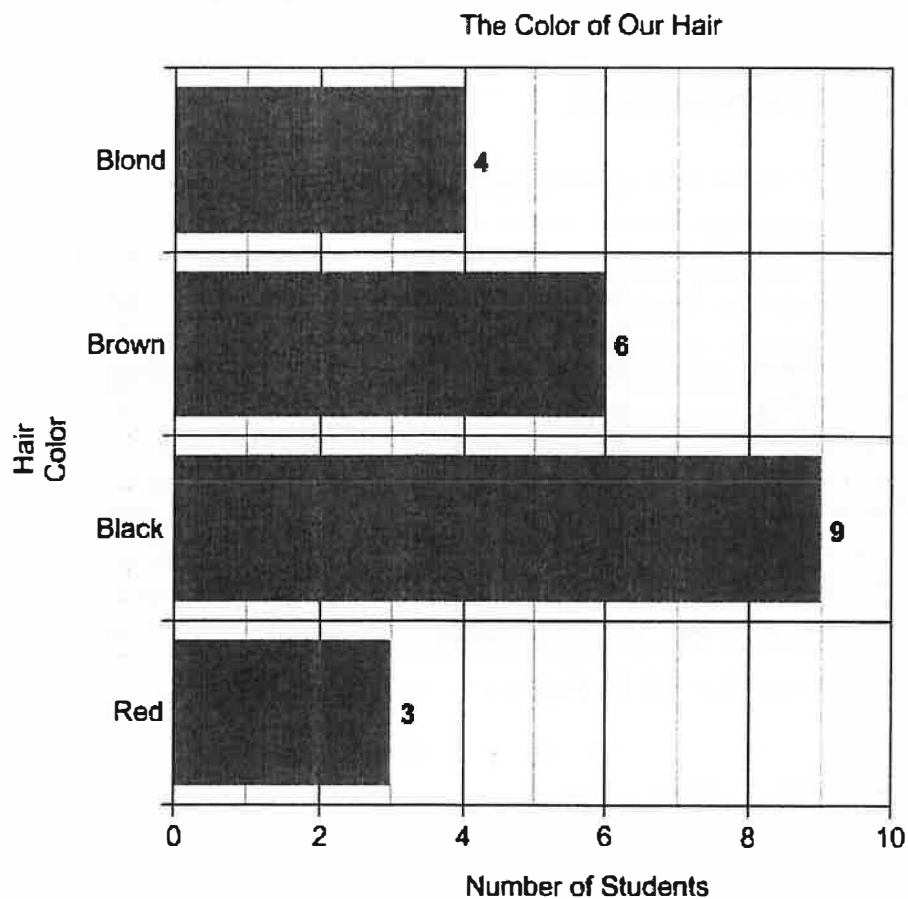
20 cars found, displaying 10 car(s), from 1 to 10. Page 1 / 2. 1 2 > >> >|

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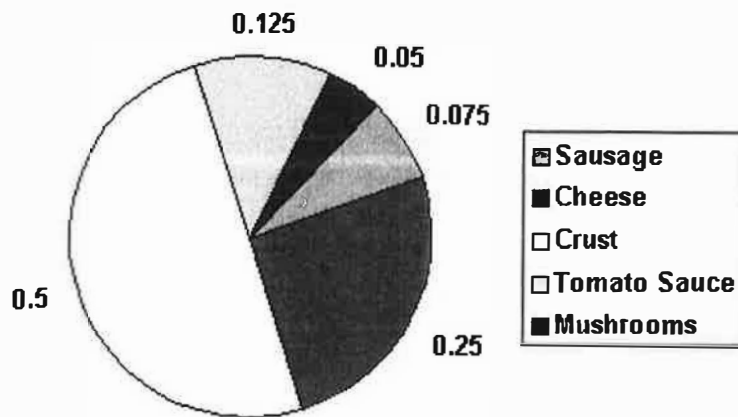
GRAPHS

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*

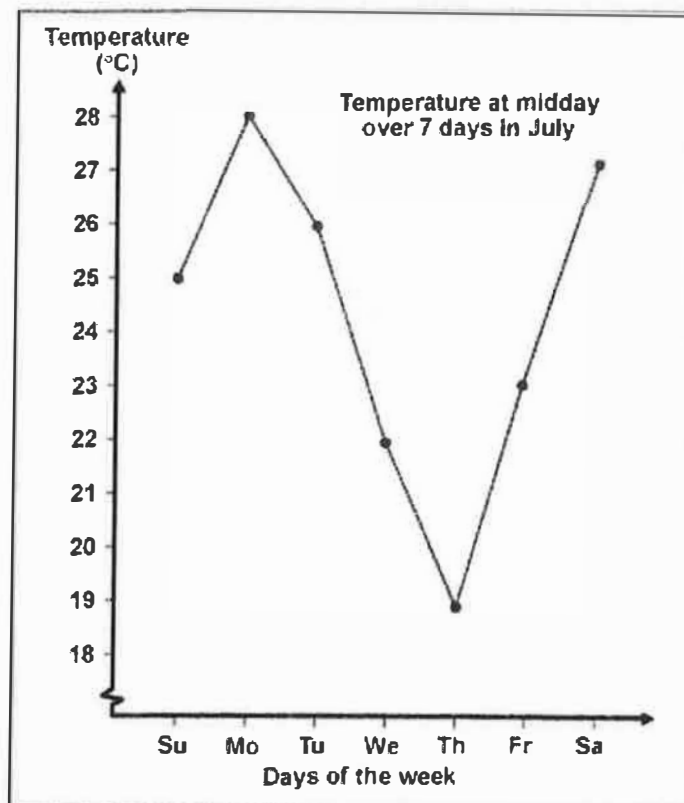


circle graph graphs that show a whole amount (100%) divided into parts



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



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

