

Sixth Grade Math Skills

- Find the least common multiple of two whole numbers less than or equal to 12
- Find the greatest common factor of two whole numbers less than or equal to 100
- Apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor (Example: Express $36 + 8$ as $4(9 + 2)$)
- Identify parts of an expression using mathematical terms (ie. sum, product, factor, quotient) (Example: Describe the expression $2(8 + 7)$ as a product of two factors.)
- Solve problems involving operations (+, -, x, /) with whole numbers, decimals (through thousandths), straight computation, or word problems.
- Fluently add, subtract, multiply, and divide multi-digit decimals & whole numbers
- Apply & extend previous understandings of multiplication and division to divide fractions by fractions (solve related word problems)
- Determine the opposite of a number & recognize that the opposite of the opposite of a number is the number itself (ie. $-(-3)=3$, and that 0 is its own opposite).
- Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation (ie. Temps above/below zero, elevation above/below sea level, credits/debits)
- Write, interpret, and explain statements of order for rational numbers in real-world contexts. (Example: Write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C)
- Locate & plot integers & other rational numbers on a horizontal or vertical number line; locate & plot pairs of integers & other rational numbers on a coordinate plane.
- Interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation. (Example: For an account balance of -30 dollars, write $|-30| = 30$ to describe the size of the debt in dollars.)
- Solve real-world & mathematical problems by plotting points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate
- Use ratio language & notation (such as 3 to 4, 3:4, $\frac{3}{4}$) to describe a ratio relationship between two quantities. (Example: "The ratio of girls to boys in a math class is 2:3, because for every 2 girls there are 3 boys.")
- Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. Use tables to compare ratios.
- Find the unit rate a/b associated with a ratio $a:b$ (with $b \neq 0$), & use rate language in the context of a ratio relationship. (Example 1: "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $\frac{3}{4}$ cup of flour for each cup of sugar." Example 2: "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.")
- Solve unit rate problems including those involving unit pricing & constant speed. (Example: If it took 7 hrs to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hrs? At what rate were lawns being mowed?)
- Find a percent of a quantity as a rate per 100 (ie. 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part & the percent.
- Use ratio and rate reasoning to solve real world and mathematical problems

- Write an equation to express the relationship between the dependent & independent variables. (Example: in a problem involving motion at a constant speed of 65 units, write the equation $d=65t$ to represent the relationship between distance and time.)
- Write and evaluate numerical expressions involving whole-number exponents
- Write algebraic expressions from verbal descriptions. (Example: Express the description “five less than twice a number” as $2y - 5$)
- Identify parts of an expression using mathematical terms (ie. term, coefficient). (Example: Describe the expression $2(8+7)$ as a product of two factors.)
- Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems. (Example: Evaluate the expression b^2-5 when $b=4$.)
- Apply the properties of operations to generate equivalent expressions. (Example 1: Apply the distributive property to the expression $24x+18y$ to produce the equivalent expression $6(4x+3y)$. Example 2: Apply properties of operations to $y+y+y$ to produce the equivalent expression $3y$.)
- Write algebraic expressions to represent real-world or mathematical problems.
- Use substitutions to determine whether a given number in a specified set makes an equation or inequality true.
- Solve real-world & mathematical problems by writing & solving equations of the form $x+p=q$ & $px=q$ for cases in which p , q , and x are all non-negative rational numbers.
- Write an inequality of the form $z>c$ or $x<c$ to represent a constraint or condition in a real-world or mathematical problem &/or represent solutions of such inequalities on number lines.
- Write an equation to express the relationship between the dependent & independent variables. (Example: in a problem involving motion at a constant speed of 65 units, write the equation $d=65t$ to represent the relationship between distance and time.)
- Analyze the relationship between the dependent & independent variables using graphs & tables, &/or relate these to an equation.
- Determine the area of triangles & special quadrilaterals (ie. square, rectangle, parallelogram, rhombus, & trapezoid). Formulas will be provided.
- Determine the area of irregular or compound polygons. (Example: Find the area of a room in the shape of an irregular polygon by composing &/or decomposing.)
- Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths & area of the polygon (limited to triangles & special quadrilaterals). Formulas will be provided.
- Represent three-dimensional figures using nets made up of rectangles and triangles.
- Determine the surface area of triangular & rectangular prisms. Formulas provided.
- Determine the volume of right rectangular prisms with fractional edge lengths. Formulas provided.
- Display numerical data in plots on a number line, including dot plots, histograms, & box-and-whisker plots.
- Determine quantitative measures of center (ie. median, mean, &/or mode).
- Determine quantitative measures of variability (ie. range, interquartile range, &/or mean absolute deviation).
- Describe any overall pattern & any deviations from the overall pattern with reference to the context in which the data were gathered.
- Relate the choice of measures of center & variability to the shape of the data distribution & the context in which the data were gathered.

Web address for Think Central:

www-k6.thinkcentral.com

Username: Your child's email address (name@stu.npenn.org)

Password: Your child's student number