



# Summer Math Practice Guidelines

## El Segundo Middle School

### Incoming 6th Grade Summer Math Practice

For students who want to keep their Math skills sharp over the summer, it is recommended to:

- Practice basic multiplication math facts (times tables) using flash cards, [www.quizlet.com](http://www.quizlet.com), T.S. Challenge (The Speed Challenge) app, or [www.multiplication.com](http://www.multiplication.com)
- Master basic math operation calculations (addition, subtraction, multiplication, division.) [www.khanacademy.org](http://www.khanacademy.org) is a great resource.

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A detailed document covering all of the California Common Core State Standards for Mathematics by grade level is available at:

[www.cde.ca.gov/be/st/ss/documents/ccsmathstandardaug2013.pdf](http://www.cde.ca.gov/be/st/ss/documents/ccsmathstandardaug2013.pdf)

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Additionally, the following topics were covered in 5th grade and to help maximize student success in 6th grade, reviewing the following topics would be beneficial:

- Write and interpret numerical expressions.
- Analyze patterns and relationships.
- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.
- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

- Convert like measurement units within a given measurement system.
- Represent and interpret data.
- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
- Graph points on the coordinate plane to solve real-world and mathematical problems.
- Classify two-dimensional figures into categories based on their properties.
- Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
- Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and  $\frac{1}{10}$  of what it represents in the place to its left.
- Explain patterns in the number of zeros of the product when multiplying a number by powers of 10
- Read, write, and compare decimals to thousandths.
- Use place value understanding to round decimals to any place.
- Fluently multiply multi-digit whole numbers using the standard algorithm.
- Add and subtract fractions with unlike denominators.
- Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
- Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
- Understand concepts of volume and relate volume to multiplication and to addition.

## Incoming 7th Grade Summer Math Practice

For students who want to keep their Math skills sharp over the summer, it is recommended to:

- Practice Basic Multiplication Math Facts (times tables) using flash cards, [www.quizlet.com](http://www.quizlet.com), T.S. Challenge (The Speed Challenge) App, [www.multiplication.com](http://www.multiplication.com)
- Master basic math operation calculations (addition, subtraction, multiplication, division) [www.khanacademy.org](http://www.khanacademy.org) is a great resource.

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Additionally, the following topics were covered in 6th grade and to help maximize student success in 7th grade, reviewing the following topics would be beneficial:

- Define and measure the area of rectangles and shapes that can be broken into rectangles.
- Use a generic rectangle to multiply, both on paper and mentally.
- Find the greatest common factor of selected numbers.
- Use percents, decimals, and fractions to describe a portion of a whole.
- Represent portions as percents, decimals, and fractions with pictures, symbols, and words.
- Find the decimal form of a number when it is given as a percent or fraction.
- Connect ratios to portions as a way to represent comparisons of parts.
- Add positive and negative integers and rational numbers.

- Find the absolute value of a number.
- Find the length of horizontal and vertical line segments on a coordinate graph.
- Use variables to generalize and to represent unknown quantities.
- Find the value of an algebraic expression when the value of the variable is known.
- Know how to multiply fractions, mixed numbers, and decimals.
- Find the areas of shapes, including rectangles, triangles, parallelograms, and trapezoids.
- Represent division of fractions using diagrams.
- Divide whole and mixed numbers by fractions.
- Use the Order of Operations to find the correct value of a numerical expression.
- Combine like terms and simplify algebraic expressions.
- Calculate rates, including unit rates.
- Compare ratios and rates with different units.
- Divide more efficiently with fractions, mixed numbers, and decimals.
- Rewrite expressions by combining like terms and using the Distributive Property.
- Use measures of central tendency, histograms, stem-and-leaf plots, and box plots to represent and compare data.
- Solve problems involving distance, rate, and time ( $d = rt$ ).
- Find the volume of three-dimensional solids, known as right prisms.
- Find the surface area and volume of a rectangular prism.

## Incoming 8th Grade Summer Math Practice

For students who want to keep their Math skills sharp over the summer, it is recommended to:

- Practice Basic Multiplication Math Facts (times tables) using flash cards, [www.quizlet.com](http://www.quizlet.com), T.S. Challenge (The Speed Challenge) App, [www.multiplication.com](http://www.multiplication.com)
- Master basic math operation calculations (addition, subtraction, multiplication, division) [www.khanacademy.org](http://www.khanacademy.org) is a great resource.

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Additionally, the following topics were covered in 7th grade and to help maximize student success in 8th grade, reviewing the following topics would be beneficial:

- Calculate the probabilities of two separate events to decide which is more likely to happen.
- Find both experimental and theoretical probabilities of events.
- Add and subtract fractions, as well as write equivalent fractions.
- Determine whether a fraction can be rewritten as a repeating or terminating decimal.
- Add and multiply positive and negative integers and rational numbers.
- Choose appropriate scales and set up useful graphs for data.
- Subtract and multiply positive and negative numbers.
- Divide with fractions, mixed numbers, and decimals.
- Find solutions to problems involving proportional relationships.

- Identify proportional relationships in tables, graphs, and equations.
- Calculate unit rates.
- Combine like terms and simplify algebraic expressions.
- Rewrite expressions by combining like terms and using the Distributive Property.
- Simplify and compare two algebraic expressions.
- Find and use percentages to solve problems.
- Calculate the probability of compound (multiple) events.
- Use experimental results to make and test conjectures about unknown sample spaces.
- Simplify and compare two algebraic expressions.
- Write and solve algebraic inequalities.
- Solve for a variable when two expressions are equal.
- Write and solve an equation to solve a word problem.
- Recognize when an equation has no solution or infinite solutions
- Simplify and compare two algebraic expressions.
- Write and solve algebraic inequalities.
- Solve for a variable when two expressions are equal.
- Write and solve an equation to solve a word problem.
- Recognize when an equation has no solution or infinite solutions.
- Describe, analyze and compare sets of data using measures of central tendency, such as mean and median, and using the variation, including range and interquartile range (IQR).

- Identify angles by their characteristics and use correct vocabulary to describe and name them.
- Calculate the circumferences and areas of circles.
- Find the areas of shapes made up of special quadrilaterals, circles, and triangles.
- Calculate the volumes of some three-dimensional shapes.
- Find the surface areas and volumes of rectangular prisms.

## Incoming Algebra Math Practice

For students who want to keep their Math skills sharp over the summer, it is recommended to:

- Practice Basic Multiplication Math Facts (times tables) using flash cards, [www.quizlet.com](http://www.quizlet.com), T.S. Challenge (The Speed Challenge) App, [www.multiplication.com](http://www.multiplication.com)
  - Master basic math operation calculations (addition, subtraction, multiplication, division) [www.khanacademy.org](http://www.khanacademy.org) is a great resource.
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Additionally, the following topics were covered in 8th grade Math and to help maximize student success in Algebra, reviewing the following topics would be beneficial:

- Writing and solving an equation.
- Drawing a graph.
- What a variable is.
- How to write and simplify algebraic expressions.
- How to compare two complicated algebraic expressions.
- How to solve for a variable if you know that two expressions are equal.
- How to find a rule from a table
- How to represent a situation using a table, a rule, and a graph.

- How to graph linear and parabolic rules using an appropriate scale.
- What it means for something to be the solution to an equation, and what it means for an equation to have no solution.
- How to determine the number of solutions to an equation.
- How to change any representation of data (such as a pattern, table, graph or rule) to any of the other representations.
- How to use the connections between patterns, tables, graphs, and rules to solve problems
- How to solve multi-variable equations for one of the variables.
- How to solve equations with fractional coefficients.
- How to find the point where two lines intersect.
- How to use the connections between graphs, tables, rules, and patterns to solve problems.
- Transform shapes by flipping, turning, and sliding them on a coordinate graph.
- Describe movement on a graph using coordinates and expressions.
- Compare shapes and use similarity to find missing side lengths of polygons, especially triangles.
- Create scatter plots that show the relationship between two variables.
- Identify associations between sets of data and represent the relationship with a trend line.
- Measure the steepness of a line by using slope.
- Find the slope of a line given its equation, its graph, or any two points on the line.
- Find the equation of a trend line to fit linear data.

- Calculate compound interest.
- Determine whether a relationship grows linearly or exponentially.
- Rewrite expressions using exponents and scientific notation.
- Perform operations with numbers written in scientific notation.
- Determine if a relation is a function by looking at its table or graph.
- Find the measurements of missing angles made by a line that intersects parallel lines.
- Find unknown angles inside and outside of triangles.
- Determine if two triangles are similar by looking at their angles.
- Find missing side lengths of right triangles using the Pythagorean Theorem.
- Find the square root of a number and identify irrational numbers.
- Convert terminating and repeating decimals to fractions.
- Find the cube root of a number.
- Find the surface areas of cylinders and pyramids.
- Find the volumes of non-rectangular shapes, including cylinders, pyramids, cones, and spheres.