**8th GRADE KHAN ACADEMY LINKS**

Here is a set of Khan Academy activities related to the topics we are learning in class. If you are not sure what to practice, you can always find something here! Most sections have an instructional video followed by a practice set.

**Exponents & Scientific Notation**

1. Identify the properties of exponents and find the value of an expression with both positive and negative exponents

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-exponent-properties/v/exponent-properties-involving-products>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-exponent-properties/v/products-and-exponents-raised-to-an-exponent-properties>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-exponent-properties/v/exponent-properties-involving-quotients>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-exponent-properties/e/powers-of-products-and-quotients-sp>

2. Convert between standard notation into scientific notation

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-scientific-notation/v/scientific-notation-old>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-scientific-notation/v/scientific-notation>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-scientific-notation/e/scientific_notation>

3. Multiply and divide using scientific notation

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-orders-of-magnitude/v/multiplying-multiples-of-powers-of-10>

 <https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-orders-of-magnitude/e/orders-of-magnitude>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-computing-scientific-notation/v/multiplying-and-dividing-in-scientific-notation>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-computing-scientific-notation/e/multiplying_and_dividing_scientific_notation>

4. Solve real world word problems using scientific notation

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-orders-of-magnitude/v/orders-of-magnitude-exercise-example-1>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-orders-of-magnitude/v/orders-of-magnitude-exercise-example-2>

**Proportional & non-proportional Relationships**

1. Graph proportional relationships

2. Compare two different proportional relationships represented in different ways (table, graph, description)

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/cc-8th-graphing-prop-rel/v/graphing-proportional-relationships-example>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/cc-8th-graphing-prop-rel/v/graphing-proportional-relationships-example-2>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/cc-8th-graphing-prop-rel/v/graphing-proportional-relationships-example-3>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/cc-8th-graphing-prop-rel/e/graphing-proportional-relationships>

3. Write the equation of a line given two points and decide if a point lies on a line given the equation

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/writing-slope-intercept-equations/v/equation-of-a-line-3>

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/writing-slope-intercept-equations/e/slope-intercept-equation-from-two-points>

4. Write the equation of a line given one point and the y-intercept

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/writing-slope-intercept-equations/v/equation-of-a-line-1>

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/writing-slope-intercept-equations/v/linear-equations-in-slope-intercept-form>

5. Write the equation of a line given the labeled graph

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/writing-slope-intercept-equations/v/graphs-using-slope-intercept-form>

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/writing-slope-intercept-equations/a/writing-slope-intercept-equations>

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/writing-slope-intercept-equations/e/slope-intercept-equation-from-graph>

6. Create a function chart/table form an equation and write a function rule from a table of values

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-linear-functions-modeling/a/modeling-with-tables-equations-and-graphs>

7. Identify whether a relation is a function from a table, a graph or a set of ordered pairs

<https://www.khanacademy.org/math/algebra/algebra-functions/evaluating-functions/v/what-is-a-function>

<https://www.khanacademy.org/math/algebra/algebra-functions/recognizing-functions-ddp/v/graphical-relations-and-functions>

<https://www.khanacademy.org/math/algebra/algebra-functions/recognizing-functions-ddp/e/recog-func-2>

<https://www.khanacademy.org/math/algebra/algebra-functions/recognizing-functions-ddp/v/functional-relationships-1>

<https://www.khanacademy.org/math/algebra/algebra-functions/recognizing-functions-ddp/e/recognizing_functions>

<https://www.khanacademy.org/math/algebra/algebra-functions/recognizing-functions-ddp/v/recognizing-functions-example-1>

8. Graph a function when given an algebraic expression

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/graphing-slope-intercept-equations/v/graphing-a-line-in-slope-intercept-form>

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/graphing-slope-intercept-equations/e/graph-from-slope-intercept-equation>

9. Determine the slope/rate of change of a function

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-slope/v/slope-from-equation>

10. Compare the slope/rate of change of linear functions represented in different ways: tables, graphs, equations

<https://www.khanacademy.org/math/algebra/linear-word-problems/comparing-linear-functions/v/comparing-features-of-functions-1>

<https://www.khanacademy.org/math/algebra/linear-word-problems/comparing-linear-functions/v/comparing-features-of-functions-3>

<https://www.khanacademy.org/math/algebra/linear-word-problems/comparing-linear-functions/v/comparing-features-of-functions-5>

<https://www.khanacademy.org/math/algebra/linear-word-problems/comparing-linear-functions/e/comparing-features-of-functions-0-5>

11. Interpret the parts of the equation y = mx + b and determine & interpret the y-intercept and slope from a table or graph

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/slope-intercept-form/v/slope-intercept-form>

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/slope-intercept-form/e/slope-from-an-equation-in-slope-intercept-form>

12. Assess whether a given function is a linear function (a straight line) or a non-linear function

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/linear-nonlinear-functions-tut/v/recognizing-linear-functions>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/linear-nonlinear-functions-tut/e/linear-non-linear-functions>

13. Sketch a graph of a function that has been described verbally and describe the relationship

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/cc-8th-function-intro/v/recognizing-functions-example-1>

14. Interpret a graph of a real-world situation

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/linear-nonlinear-functions-tut/v/interpreting-a-graph-exercise-example>

**Solving Equations & Systems of Equations**

1. Solve a linear equation with variables on both sides

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/variables-on-both-sides/v/equations-3>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/variables-on-both-sides/v/solving-equations-2>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/variables-on-both-sides/v/solving-equations-with-the-distributive-property-2>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/variables-on-both-sides/e/linear_equations_3>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/variables-on-both-sides/e/variables-on-both-sides-rational>

2. Classify whether an equation has only one solution, no solutions, or infinitely many solutions.

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/number-of-solutions-to-linear-equations/v/number-of-solutions-to-linear-equations>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/number-of-solutions-to-linear-equations/v/equation-special-cases>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/number-of-solutions-to-linear-equations/e/solutions-to-linear-equations>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/number-of-solutions-to-linear-equations/v/number-of-solutions-to-linear-equations-ex-2>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations/number-of-solutions-to-linear-equations/v/number-of-solutions-to-linear-equations-ex-3>

3. Identify the solution to two linear equations by graphing and identifying the intersection point.

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-graphically/v/solving-linear-systems-by-graphing>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-graphically/v/graphings-systems-of-equations>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-graphically/v/graphical-systems-application-problem>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-graphically/e/graphing_systems_of_equations>

4. Solve systems of two linear equations algebraically.

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-with-substitution/v/the-substitution-method>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-with-substitution/v/the-substitution-method>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-with-substitution/e/systems_of_equations_with_substitution>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-elimination/v/solving-systems-by-elimination-2>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-elimination/v/addition-elimination-method-1>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-elimination/e/systems_of_equations_with_elimination_0.5>

5. Solve word problems involving systems of two linear equations

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-word-problems/v/system-of-equations-distances-word-problem>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-word-problems/e/understanding-systems-of-equations-word-problems>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-word-problems/v/systems-word-problem-with-no-solution>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-word-problems/v/system-with-not-enough-information>

6. Show that a system of linear equations can have no solution or infinite solutions

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-elimination/e/systems_of_equations_with_elimination_0.5>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-solutions/v/practice-thinking-about-number-of-solutions-to-systems>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-solutions/e/graphical-solutions-to-systems>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-systems-topic/cc-8th-systems-solutions/a/number-of-solutions-to-system-of-equations-review>

**Transformational Geometry**

1. Identify the transformations that move one figure into another and use coordinates to describe rotations, reflections & translation and recognize that two figures are congruent if one is derived from the other by a sequence of reflection, rotation, and/or translation transformations

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/transformations-properties/v/testing-congruence-by-transformations-example>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/transformations-properties/e/transformation-preserved-properties>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/identify-transformations/v/introduction-to-transformations>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/identify-transformations/v/possible-transformations-example>

2. Create a sequence of rotating, reflecting or translating to prove that two congruent figures are actually congruent

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/translations-8th/v/translation-example>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/translations-8th/e/translations>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/translations-8th/a/determining-translations>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/rotations-8th/v/using-rotation-widget>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/rotations-8th/v/defining-rotation-example>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/rotations-8th/e/defining-rotations>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/reflections-8th/v/using-reflection-tool>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/reflections-8th/a/reflecting-shapes>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/reflections-8th/e/reflections-1>

3. Use coordinates to describe dilations and identify transformations that move a figure onto a similar figure

Identify the scale factor that enlarges or reduces a figure to match a similar figure

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/8th-dilations/v/dilating-from-an-arbitrary-point-example>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/8th-dilations/v/thinking-about-dilations>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/8th-dilations/v/scaling-down-a-triangle-by-half>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/8th-dilations/e/dilations>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/8th-dilations/e/dilations-preserved-properties>

**Measurement Geometry**

1. Identify and use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-triangle-angles/v/proof-sum-of-measures-of-angles-in-a-triangle-are-180>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-triangle-angles/e/triangle_angles_1>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-angles-between-lines/v/angles-formed-by-parallel-lines-and-transversals>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-angles-between-lines/v/identifying-parallel-and-perpendicular-lines>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-angles-between-lines/v/figuring-out-angles-between-transversal-and-parallel-lines>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-angles-between-lines/e/parallel_lines_2>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-angles-between-lines/e/angles_1>

2. Apply the formula for volume of a cone, cylinder, or sphere

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-volume/v/cylinder-volume-and-surface-area>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-volume/e/volumes-of-cones--cylinders--and-spheres>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-volume/v/volume-of-a-sphere>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-volume/e/volume-of-spheres>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-volume/v/volume-cone-example>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-volume/e/volume-of-cones>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-volume/e/volume-of-cylinders--spheres--and-cones-word-problems>

**Statistics**

1. Identify a scatter plot as a positive or negative association and as a linear or non-linear association

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-interpreting-scatter-plots/v/scatter-plot-interpreting>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-interpreting-scatter-plots/v/trends-in-smoking-scatter-plot>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-interpreting-scatter-plots/e/positive-and-negative-linear-correlations-from-scatter-plots>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-interpreting-scatter-plots/e/interpreting-scatter-plots>

2. Identify an outlier

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-interpreting-scatter-plots/a/outliers-in-scatter-plots>

3. Find a line that best fits the data in a scatter plot

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-line-of-best-fit/v/estimating-the-line-of-best-fit-exercise>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-line-of-best-fit/e/plotting_the_line_of_best_fit>

4. Apply knowledge of slope and intercept to real-world problems

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-line-of-best-fit/v/interpreting-trend-line>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/cc-8th-line-of-best-fit/e/interpreting-slope-and-y-intercept-of-lines-of-best-fit>

5. Use two-way tables and analysis of cell frequencies and relative frequencies to decide whether two variables are related

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/two-way-tables/v/two-way-frequency-tables-and-venn-diagrams>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/two-way-tables/e/reading-two-way-frequency-tables>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/two-way-tables/v/two-way-relative-frequency-tables>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/two-way-tables/v/two-way-relative-frequency-tables>

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-data/two-way-tables/v/interpreting-two-way-tables>