

FSA EOC Tutorials for Florida are designed specifically for the Mathematics Florida Standards to prepare students for the Florida Standards Assessments (FSA). EOC Categories are at the heart of FSA EOC Tutorial structure – bringing category-based learning to the student experience, and category-based performance and progress tracking to the teacher experience.

Math Tutorials offer targeted instruction, practice and review designed to develop computational fluency, deepen conceptual understanding, and apply mathematical practices. They automatically identify and address learning gaps down to elementary-level content, using adaptive remediation to bring students to grade-level no matter where they start. Students engage with the content in an interactive, feedback-rich environment as they progress through standards-aligned modules. By constantly honing the ability to apply their knowledge in abstract and real world scenarios, students build the depth of knowledge and higher order skills required to demonstrate their mastery when put to the test.

In each module, the Learn It and Try It make complex ideas accessible to students through focused content, modeled logic and process, multi-modal representations, and personalized feedback as students reason through increasingly challenging problems. The Review It offers a high impact summary of key concepts and relates those concepts to students' lives. The Test It assesses students' mastery of the module's concepts, providing granular performance data to students and teachers after each attempt. To help students focus on the content most relevant to them, unit-level pretests and posttests can quickly identify where students are strong and where they're still learning.

Test-Taking Strategies for EOC Tutorials allow students to practice and apply learning approaches that will hone their test-taking skills and focus them for success on the day of their EOC test.

## 1. POINTS, LINES, AND ANGLES

### ● POINTS, RAYS, LINE SEGMENTS, LINES, AND FIGURES

- **MAFS.912.G-CO.1.1** Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

### ● PARALLEL LINES AND ANGLE RELATIONSHIPS

- **MAFS.912.G-CO.3.9** Prove theorems about lines and angles; use theorems about lines and angles to solve problems.

### ● PERPENDICULAR BISECTOR AND ANGLE BISECTOR THEOREMS

- **MAFS.912.G-CO.3.9** Prove theorems about lines and angles; use theorems about lines and angles to solve problems.

## 2. PARALLEL AND PERPENDICULAR LINES

### ● PARALLEL AND PERPENDICULAR LINES

- **MAFS.912.G-GPE.2.5** Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

## 3. COORDINATE GEOMETRY

### ● SLOPE-INTERCEPT FORM OF A LINEAR EQUATION

- **MAFS.912.G-GPE.2.5** Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

### ● LENGTH AND THE DISTANCE FORMULA

- **MAFS.912.G-GPE.2.6** Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
- **MAFS.912.G-GPE.2.7** Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

- **MIDPOINT FORMULA ON THE COORDINATE PLANE**

- **MAFS.912.G-GPE.2.6** Find the point on a directed line segment between two given points that partitions the segment in a given ratio.

#### 4. CONJECTURES IN COORDINATE GEOMETRY

- **CONJECTURES IN COORDINATE GEOMETRY**

- **MAFS.912.G-CO.3.10** Prove theorems about triangles; use theorems about triangles to solve problems.
- **MAFS.912.G-GPE.2.4** Use coordinates to prove simple geometric theorems algebraically.

#### 5. PERIMETER AND AREA ON THE COORDINATE PLANE

- **PERIMETER ON THE COORDINATE PLANE**

- **MAFS.912.G-GPE.2.7** Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.
- **MAFS.912.G-MG.1.1** Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

- **AREA ON THE COORDINATE PLANE**

- **MAFS.912.G-GPE.2.7** Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.
- **MAFS.912.G-MG.1.1** Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

#### 6. TRANSFORMATIONS ON THE COORDINATE PLANE

- **TRANSFORMATIONS ON THE COORDINATE PLANE**

- **MAFS.912.G-CO.1.5** Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
- **MAFS.912.G-CO.1.3** Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
- **MAFS.912.G-CO.1.2** Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
- **MAFS.912.G-CO.1.4** Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
- **MAFS.912.G-SRT.1.1.a** A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
- **MAFS.912.G-SRT.1.1.b** The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

- **DILATIONS, TRANSLATIONS, ROTATIONS, AND REFLECTIONS**

- **MAFS.912.G-CO.1.2** Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
- **MAFS.912.G-CO.1.3** Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
- **MAFS.912.G-CO.1.5** Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure

onto another.

- **MAFS.912.G-SRT.1.1.a** A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
- **MAFS.912.G-SRT.1.1.b** The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

## 7. CONGRUENCE AND SIMILARITY

### ● TRIANGLES AND CONGRUENCE TRANSFORMATIONS

- **MAFS.912.G-CO.2.6** Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
- **MAFS.912.G-SRT.2.5** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- **MAFS.912.G-CO.2.7** Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
- **MAFS.912.G-CO.2.8** Explain how the criteria for triangle congruence (ASA, SAS, SSS, and Hypotenuse-Leg) follow from the definition of congruence in terms of rigid motions.

### ● TRIANGLES AND SIMILARITY TRANSFORMATIONS

- **MAFS.912.G-SRT.1.2** Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
- **MAFS.912.G-SRT.1.3** Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
- **MAFS.912.G-SRT.2.5** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- **MAFS.912.G-SRT.2.4** Prove theorems about triangles.

### ● CONGRUENCE OF OTHER POLYGONS

- **MAFS.912.G-CO.2.6** Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
- **MAFS.912.G-CO.1.5** Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
- **MAFS.912.G-CO.1.3** Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

### ● SIMILARITY OF OTHER POLYGONS

- **MAFS.912.G-SRT.1.2** Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

## 8. TRIANGLES

### ● TRIANGLE ANGLE THEOREMS

- **MAFS.912.G-CO.3.10** Prove theorems about triangles; use theorems about triangles to solve problems.

### ● MEDIANS AND ALTIITUDES OF TRIANGLES

- **MAFS.912.G-CO.3.10** Prove theorems about triangles; use theorems about triangles to solve problems.

## 9. TRIANGLE BISECTORS

### ● TRIANGLE BISECTORS

- **MAFS.912.G-CO.3.10** Prove theorems about triangles; use theorems about triangles to solve problems.
- **MAFS.912.G-SRT.2.4** Prove theorems about triangles.
- **MAFS.912.G-C.1.3** Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.

## 10. QUADRILATERALS AND CONSTRUCTIONS

### ● PARALLELOGRAMS AND RECTANGLES

- **MAFS.912.G-CO.3.11** Prove theorems about parallelograms; use theorems about parallelograms to solve problems.

### ● SQUARES AND RHOMBI

- **MAFS.912.G-CO.3.11** Prove theorems about parallelograms; use theorems about parallelograms to solve problems.

### ● CONSTRUCTIONS

- **MAFS.912.G-CO.4.12** Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).
- **MAFS.912.G-CO.4.13** Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

## 11. TRIANGLES AND TRIGONOMETRY

### ● PYTHAGOREAN THEOREM

- **MAFS.912.G-SRT.3.8** Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
- **MAFS.912.G-SRT.2.4** Prove theorems about triangles.
- **MAFS.912.G-CO.3.10** Prove theorems about triangles; use theorems about triangles to solve problems.

### ● TRIGONOMETRIC RATIOS

- **MAFS.912.G-SRT.3.8** Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
- **MAFS.912.G-SRT.3.7** Explain and use the relationship between the sine and cosine of complementary angles.
- **MAFS.912.G-SRT.3.6** Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

## 12. RADIANS AND THE UNIT CIRCLE

### ● RADIANS AND THE UNIT CIRCLE

- **MAFS.912.G-C.2.5** Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.
- **MAFS.912.G-SRT.3.8** Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

## 13. CIRCLES

### ● CIRCLE BASICS

- **MAFS.912.G-C.1.2** Identify and describe relationships among inscribed angles, radii, and chords.

### ● CENTRAL ANGLES, INSCRIBED ANGLES, AND CHORDS

- **MAFS.912.G-C.1.2** Identify and describe relationships among inscribed angles, radii, and chords.
- **MAFS.912.G-C.1.3** Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
- **MAFS.912.G-CO.3.9** Prove theorems about lines and angles; use theorems about lines and angles to solve problems.

### ● SECANTS, ANGLES, AND INTERCEPTED ARCS

- **MAFS.912.G-CO.3.9** Prove theorems about lines and angles; use theorems about lines and angles to solve problems.
- **MAFS.912.G-C.1.2** Identify and describe relationships among inscribed angles, radii, and chords.

- **TANGENTS, ANGLES, AND INTERCEPTED ARCS**

- **MAFS.912.G-CO.3.9** Prove theorems about lines and angles; use theorems about lines and angles to solve problems.
- **MAFS.912.G-C.1.2** Identify and describe relationships among inscribed angles, radii, and chords.

## 14. PROPERTIES OF CIRCLES

- **CIRCUMFERENCE AND ARC LENGTH**

- **MAFS.912.G-GMD.1.1** Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

- **AREA OF CIRCLES AND SECTORS**

- **MAFS.912.G-GMD.1.1** Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.
- **MAFS.912.G-C.2.5** Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

## 15. CONGRUENCE, SIMILARITY, AND EQUATIONS OF CIRCLES

- **CONGRUENT AND SIMILAR CIRCLES**

- **MAFS.912.G-C.1.1** Prove that all circles are similar.

- **CIRCLES**

- **MAFS.912.G-GPE.1.1** Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.

## 16. SURFACE AREA

- **SURFACE AREA AND VOLUME OF SPHERES**

- **MAFS.912.G-GMD.2.4** Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
- **MAFS.912.G-GMD.1.3** Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

- **RELATING TWO-DIMENSIONAL FIGURES TO THREE-DIMENSIONAL SOLIDS**

- **MAFS.912.G-GMD.2.4** Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

## 17. VOLUME

- **VOLUME OF PRISMS AND PYRAMIDS**

- **MAFS.912.G-GMD.1.3** Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
- **MAFS.912.G-GMD.1.1** Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

- **VOLUME OF CYLINDERS AND CONES**

- **MAFS.912.G-GMD.1.3** Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
- **MAFS.912.G-GMD.1.1** Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

- **VOLUME OF COMPOSITE SOLIDS**

- **MAFS.912.G-GMD.1.3** Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

## 18. SURFACE AREA AND MODELING WITH GEOMETRY

- **SURFACE AREA OF COMPOSITE SOLIDS**

- **MAFS.912.G-MG.1.1** Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

- **MODELING SITUATIONS WITH GEOMETRY**

- **MAFS.912.G-MG.1.2** Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).
- **MAFS.912.G-MG.1.3** Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

## 19. TEST-TAKING STRATEGIES

- **STUDY HABITS**

- **BEING PREPARED AND GETTING STARTED**

- **WORDING IN TEST QUESTIONS**

- **WORDING IN ANSWER CHOICES**

- **QUESTIONS WITH PASSAGES AND VISUAL DATA**

- **ESSAY AND SHORT ANSWER QUESTIONS**

- **WORD PROBLEMS**