



2023-2024 Jackson County Schools Algebra I w/ Probability Mathematics Pacing Guide

1st Quarter

Foundations of Geometry

***Focus Standard 1- Rewriting Expressions** [Proficiency Scale](#)

Extend understanding of irrational and rational numbers by rewriting expressions involving radicals, including addition, subtraction, multiplication, and division, in order to recognize geometric patterns.

***Focus Standard 6- Equation of a Circle** [Proficiency Scale](#)

Derive the equation of a circle of given center and radius using the Pythagorean Theorem.

Standard 6b- Derive the distance formula from the Pythagorean Theorem.

***Focus Standard 30- Definitions** [Proficiency Scale](#)

Develop and use precise definitions of figures such as angle, circle, perpendicular lines, parallel lines, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

2nd Quarter

Transformations

***Focus Standard 21- Transformations** [Proficiency Scale](#)

Represent transformations and compositions of transformations in the plane (coordinate and otherwise) using tools such as tracing paper and geometry software.

Standard 21a- Describe transformations and compositions of transformations as functions that take points in the plane as inputs and give other points as outputs, using informal and formal notation.

Standard 21b- Compare transformations which preserve distance and angle measure to those that do not.

***Focus Standard 22- Rotations and Reflections** [Proficiency Scale](#)

Explore rotations, reflections, and translations using graph paper, tracing paper, and geometry software.

Standard 22a- Given a geometric figure and a rotation, reflection, or translation, draw the image of the transformed figure using graph paper, tracing paper, or geometry software.

Standard 22b- Specify a sequence of rotations, reflections, or translations that will carry a given figure onto another.

Standard 22c- Draw figures with different types of symmetries and describe their attributes

***Focus Standard 24- Congruence of Figures** [Proficiency Scale](#)

Define congruence of two figures in terms of rigid motions (a sequence of translations, rotations, and reflections); show that two figures are congruent by finding a sequence of rigid motions that maps one figure to the other.

***Focus Standard 26- Dilations**

Verify experimentally the properties of dilations given by a center and a scale factor.

Standard 26a- Verify that 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.

Standard 26b- Verify that the dilation of a line segment is longer or shorter in the ratio given by the scale factor.

3rd Quarter

Triangle Congruence and Similarity

***Focus Standard 25- Triangle Congruence** [Proficiency Scale](#)

Verify criteria for showing triangles are congruent using a sequence of rigid motions that map one triangle to another.

Standard 25a- Verify that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

Standard 25b- Verify that two triangles are congruent if (but not only if) the following groups of corresponding parts are congruent: angle-side-angle (ASA), side-angle-side (SAS), side-side-side (SSS), and angle-angle-side (AAS).

***Focus Standard 27- Similarity Transformation** [Proficiency Scale](#)

Given two figures, determine whether they are similar by identifying a similarity transformation (sequence of rigid motions and dilations) that maps one figure to the other.

***Focus Standard 28- Triangular Similarity** [Proficiency Scale](#)

Verify criteria for showing triangles are similar using a similarity transformation (sequence of rigid motions and dilations) that maps one triangle to another.

Standard 28a- Verify that two triangles are similar if and only if corresponding pairs of sides are proportional and corresponding pairs of angles are congruent.

Standard 28b- Verify that two triangles are similar if (but not only if) two pairs of corresponding angles are congruent (AA), the corresponding sides are proportional (SSS), or two pairs of corresponding sides are proportional and the pair of included angles is congruent (SAS).

***Focus Standard 34- Use Triangles in Solving Problems** [Proficiency Scale](#)

Use congruence and similarity criteria for triangles to solve problems in real-world contexts.

***Focus Standard 35 - Similar Right Triangles** [Proficiency Scale](#)

Discover and apply relationships in similar right triangles.

Standard 35a- Derive and apply the constant ratios of the sides in special right triangles (45° - 45° - 90° and 30° - 60° - 90°).

Standard 35b- Use similarity to explore and define basic trigonometric ratios, including sine ratio, cosine ratio, and tangent ratio.

Standard 35c- Explain and use the relationship between the sine and cosine of complementary angles.

Standard 35d- Demonstrate the converse of the Pythagorean Theorem.

Standard 35e- Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems, including finding areas of regular polygons.

4th Quarter

Circles, Measurement, and Statistics

***Focus Standard 6- Equation of a Circle** [Proficiency Scale](#)

Derive the equation of a circle of given center and radius using the Pythagorean Theorem.

Standard 6a- Given the endpoints of the diameter of a circle, use the midpoint formula to find its center and then use the Pythagorean Theorem to find its equation.

***Focus Standard 19- Scale Factor** [Proficiency Scale](#)

Derive and apply the relationships between the lengths, perimeters, areas, and volumes of similar figures in relation to their scale factor.

***Focus Standard 10- Mean and Median** [Proficiency Scale](#)

Use statistics appropriate to the shape of the data distribution to compare and contrast two or more data sets, utilizing the mean and median for center and the interquartile range and standard deviation for variability.

Standard 10a- Explain how standard deviation develops from mean absolute deviation.

Standard 10b- Calculate the standard deviation for a data set, using technology where appropriate.

***Focus Standard 15- Linear Models** [Proficiency Scale](#)

Evaluate possible solutions to real-life problems by developing linear models of contextual situations and using them to predict unknown values.