cK12.org Flexbook Links to Support Curriculum 2.0 Geometry and Honors Geometry

This document outlines concepts in each Topic for the Unit. When corresponding resources are available in cK12.org, a hyperlink is provided for the Flexbook. The cK12.org Flexbooks provide a variety of examples, definitions, and extra practice problems related to some of the concepts in Curriculum 2.0 Geometry and Honors Geometry. The concepts will be developed in greater depth and with appropriate vocabulary in the classroom. The materials in the Flexbooks are intended to provide additional support to the classroom expectations. The vocabulary and methods in these examples may differ slightly from the classroom expectation; however, the overall intent is consistent with the content expectation.

Unit 4: Connecting Algebra and Geometry through Coordinates

Topic 1: Conic Sections

- Identify conic sections as the cross-sections of a double cone. (cK – 12 Flexbook Unit 4 Topic 1 SLT 1)
- Identify the locus of points that defines a circle, graph, and write equations for circles using the center and the radius. (cK – 12 Flexbook Unit 4 Topic 1 SLT 2)
- Use the Pythagorean Theorem to derive the equation of a circle, given the center and the radius. (cK – 12 Flexbook Unit 4 Topic 1 SLT 3)
- Write an equation for a circle given the endpoints of the diameter. (cK – 12 Flexbook Unit 4 Topic 1 SLT 4)
- Convert an equation of a circle in quadratic form, by completing the square, to standard form and identify the center and radius of a circle. (cK – 12 Flexbook Unit 4 Topic 1 SLT 5)
- Define an ellipse in terms of the distance from its foci to any fixed point on the curve and derive the equation of an ellipse in standard form. (cK-12 Flexbook Unit 4 Topic 1 SLT 6)
- Graph ellipses and write the equations of ellipses in standard form. (cK-12 Flexbook Unit 4 Topic 1 SLT 7)
- Define a hyperbola in terms of the distance from its foci to any fixed point on the curve. (cK-12 Flexbook Unit 4 Topic 1 SLT 8)
- Graph hyperbolas and write the equations of hyperbolas in standard form. (cK-12 Flexbook Unit 4 Topic 1 SLT 9)
- Graph ellipses and hyperbolas and write their equations in standard form.
- Define a parabola. (cK – 12 Flexbook Unit 4 Topic 1 SLT 11)
- Graph and write equations of parabolas given a focus and directrix. (cK-12 Flexbook Unit 4 Topic 1 SLTs 12 & 13)
- Determine the vertex, focus, directrix, line of symmetry, and equation given the graph of a parabola. (cK-12 Flexbook Unit 4 Topic 1 SLTs 12 & 13)

Topic 2: Coordinate Geometry

- Use ratios to determine a point that divides a given line segment proportionally. (cK-12 Flexbook Unit 4 Topic 1 SLT 15)
- Prove the slope criteria for parallel and perpendicular lines. (cK-12 Flexbook Unit 4 Topic 1 SLT 16)
- Use the slope formula to prove lines are parallel or perpendicular.
- Determine the equation of a line that is parallel or perpendicular to a given line that passes through a given point. (cK – 12 Flexbook Unit 4 Topic 2 SLT 18)
- Apply the distance formula to determine the perimeter and area of polygons in the coordinate plane. (cK – 12 Flexbook Unit 4 Topic 2 SLTs 19 & 20)
- Use coordinate geometry to classify and prove triangles. (cK – 12 Flexbook Unit 4 Topic 2 SLT 21)
- Use coordinate geometry to classify and prove quadrilaterals. (cK – 12 Flexbook Unit 4 Topic 2 SLT 22)
- Use coordinate geometry to prove theorems algebraically.
- Use coordinate geometry to prove theorems algebraically. (cK – 12 Flexbook Unit 4 Topic 2 SLT 24)