

Conic Sections

MA2G3. Students will investigate the relationships between lines and circles.

- a. Find equations of circles.
- b. Graph a circle given an equation in general form.
- c. Find the equation of a tangent line to a circle at a given point.
- d. Solve a system of equations involving a circle and a line.
- e. Solve a system of equations involving two circles.

MA2G4. Students will recognize, analyze, and graph the equations of the conic sections (parabolas, circles, ellipses, and hyperbolas).

- a. Convert equations of conics by completing the square.
- b. Graph conic sections, identifying the fundamental characteristics.
- c. Write equations of conic sections given appropriate information.

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| Mon | Oct 29 | | <p>Pass out Graphic Organizer</p> <ul style="list-style-type: none"> • Introduction to conics video by Khan Academy “What are conic sections and why are they called conic sections?” http://www.youtube.com/watch?v=0A7RR0oy2ho <p>5.1: EQ: How do you Graph and Write Equations of Parabolas?</p> <ul style="list-style-type: none"> • edureations videos (I created) access from MsAllens.weebly.com: <ol style="list-style-type: none"> 1. Introduction to parabolas 2. Graph parabolas Classwork/Homework Page 179; 2 – 8 all 3. Writing equations of parabolas Classwork/Homework: Page 179; 10 – 27 all | P 179 | 2 – 28 even |
| Tue | Oct 30 | 5.2 | <p>EQ: How do you Graph and Write Equations of Circles?</p> <ul style="list-style-type: none"> • edureations videos (I created) access them from MsAllens.weebly.com | P 183 | 2 – 20 even |

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| | | | <ul style="list-style-type: none"> • distance and midpoint video • Write and Graph an equation of a circle Classwork/Homework: Page 183; 1 – 15 all • http://www.khanacademy.org/video/algebra--equation-of-a-line?topic=linear-equations-and-inequalitie • video write equations of parallel and perpendicular lines http://www.khanacademy.org/video/equations-of-parallel-and-perpendicular-lines?topic=ck12-algebra-1 • Video “Write equation of line tangent to circle” Classwork/Homework: Page 182; 23, 24 Page 183; 16, 17 | | |
| Wed | Oct 31 | 5.3 | <p>Graph and Write Equations of Ellipses</p> <ul style="list-style-type: none"> • video on ellipse http://www.khanacademy.org/math/algebra/conic-sections/v/conic-sections--intro-to-ellipses • video “foci of ellipse” http://www.khanacademy.org/math/algebra/conic-sections/v/foci-of-an-ellipse <p>Classwork/Homework: Page 188; 2 – 22 all Page 189; 2 – 14 even</p> | P 189 | 1 – 14 all |
| Thur | Nov 1 | 5.4 | <p>Graph and Write Equations of Hyperbolas</p> <ul style="list-style-type: none"> • video from khan academy Intro to Hyperbolas http://www.khanacademy.org/math/algebra/conic-sections/v/conic-sections--intro-to-hyperbolas • Graphing Hyperbolas http://www.khanacademy.org/math/algebra/conic-sections/v/conic-sections--hyperbolas-2 • Foci of Hyperbola http://www.khanacademy.org/math/algebra/conic-sections/v/conic-sections--hyperbolas-3 <p>Classwork/Homework: Page 192; 2 – 14 even Page 193; 2 – 14 even</p> | P 193 | 2 – 14 even |
| Fri | Nov 2 | | Vocabulary Due | | |

| | | | Open Notes Quiz over 5.1 - 5.4 | | |
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| Mon/Tue | Nov 5/6 | 5.5 | Translate and Classify Conic Sections | P 197 | 24 - 48 even |
| Wed | Nov 7 | RVW | Review for Unit Test | P 203 | 2 - 20 even |
| Thu | Nov 8 | | Unit Test Essential Questions Due Notebook Check | P 208 | 2 - 20 even |

Essential Questions

- How can the distance between two points be found? Give an example.
- How can the midpoint between two points be found? Give an example.
- How is a parabola graphed? Give an example.
- How is the equation of a parabola written? Give an example.
- How is a circle graphed? Give an example.
- How is the equation of a circle written? Give an example.
- How is an ellipse graphed? Give an example.
- How is the equation of an ellipse written? Give an example.
- How is a hyperbola graphed? Give an example.
- How is the equation of a hyperbola written? Give an example.
- How can conics be classified? Give an example OF EACH TYPE.
- How are quadratic systems solved?

Vocabulary

- Distance Formula
- Midpoint Formula
- Parabola
- Focus
- Directrix
- Axis of symmetry (for parabola)
- Vertex of Parabola
- Circle
- Center of circle, hyperbola and ellipse
- Radius of circle
- Foci of hyperbola
- Vertices of hyperbola
- Three-dimensional coordinate system
- Ellipse
- Foci of Ellipse
- Vertices of ellipse
- Co-vertices of Ellipse
- Major Axis of Ellipse
- Center of Ellipse
- Minor Axis of ellipse
- Hyperbola
- Center of Hyperbola
- Transverse Axis of hyperbola
- Conic Section
- Discriminant

