

Parent Guide for Student Success

For use with Chapter 10

Chapter Overview One way that you can help your student succeed in Chapter 10 is by discussing the lesson goals in the chart below. When a lesson is completed, ask your student to interpret the lesson goals for you and to explain how the mathematics of the lesson relates to one of the key applications listed in the chart.

Lesson Title	Lesson Goals	Key Applications
10.1: The Distance and Midpoint Formulas	Find the distance between two points and find the midpoint of the line segment connecting two points. Use the distance and midpoint formulas in real-life situations.	<ul style="list-style-type: none"> • Archeology • Urban Planning • Helicopter Rescue
10.2: Parabolas	Draw parabolas, write equations of parabolas, and use parabolas to solve real-life problems.	<ul style="list-style-type: none"> • Solar Energy • Automotive Engineering • Camping
10.3: Circles	Graph circles, write equations of circles, and use circles to solve real-life problems.	<ul style="list-style-type: none"> • Ocean Navigation • Desert Irrigation • Lifeguard
10.4: Ellipses	Graph ellipses, write equations of ellipses, and use ellipses in real-life situations.	<ul style="list-style-type: none"> • Landscaping • Whispering Gallery • Australian Football
10.5: Hyperbolas	Graph hyperbolas, write equations of hyperbolas, and use hyperbolas to solve real-life problems.	<ul style="list-style-type: none"> • Photography • Sundial • Aeronautics
10.6: Graphing and Classifying Conics	Write and graph an equation of a parabola with its vertex at (h, k) and an equation of a circle, ellipse, or hyperbola with its center at (h, k) . Classify a conic section using its equation.	<ul style="list-style-type: none"> • Communications • Figure Skating • Astronomy
10.7: Solving Quadratic Systems	Solve systems of quadratic equations and use quadratic systems to solve real-life problems.	<ul style="list-style-type: none"> • Seismology • Law Enforcement • Bus Boundary

Test-Taking Strategy

When taking a test, try to *stay physically relaxed and mentally focused* on the question at hand. Try not to become preoccupied with worries about time or about questions you don't know how to answer. You may wish to help your student practice both physical relaxation techniques (such as deep breathing) and positive mental messages he or she can use to calm anxiety.

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Key Ideas Your student can demonstrate understanding of key concepts by working through the following exercises with you.

Lesson	Exercise
10.1	Write an equation for the perpendicular bisector of the segment joining the points $(5, -4)$ and $(-3, -2)$.
10.2	A parabolic satellite dish is 25 feet wide and has a focus that is $7\frac{13}{16}$ feet from the vertex. Find the depth of the dish.
10.3	A radio station broadcasts up to 90 miles from its tower. You are 50 miles east of the tower. How far directly north must you travel before you can no longer hear the radio broadcast?
10.4	Write an equation of the ellipse with center at $(0, 0)$, vertex at $(8, 0)$, and co-vertex at $(0, -5)$.
10.5	Identify the foci, vertices, and asymptotes of the graph of $\frac{x^2}{25} - \frac{y^2}{144} = 1$.
10.6	Classify the conic section given by the equation $9x^2 - 4y^2 - 54x - 32y + 13 = 0$. Write the equation in standard form and identify the center, foci, and vertices.
10.7	Tom and Shari Miller live in the country. They can get radio stations from three towns. Each station has a range of 50 miles. The Canterville station's tower is 80 miles due east of the Bellvue station's tower. The Smithfield station's tower is 70 miles east and 70 miles north of the Bellvue tower. Where do Tom and Shari live in relation to Bellvue?

Home Involvement Activity

You Will Need: Modeling clay, nylon thread

Directions: Use the modeling clay to make a solid cone. By holding the nylon thread taut you can use it to slice into the cone. Try to slice the cone to form a circle, an ellipse, a parabola, and a hyperbola. Each time you slice the cone, place the clay on a piece of paper and trace the shape formed by the slice.

Answers
 10.1: $y = 4x - 7$ 10.2: 5 feet 10.3: about 75 miles 10.4: $\frac{x^2}{25} + \frac{y^2}{64} = 1$ 10.5: foci $(-13, 0)$ and $(13, 0)$, vertices $(-5, 0)$ and $(5, 0)$, asymptotes $y = \pm \frac{5}{12}x$ 10.6: hyperbola 10.7: 40 miles east and 30 miles north