

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: Tangents to Circles	Identify segments and lines related to circles. Use properties of a tangent to a circle.	<ul style="list-style-type: none"> • Silo • Golf • Mexcaltitlán Island
10.2: Arcs and Chords	Use properties of arcs of circles and of chords of circles.	<ul style="list-style-type: none"> • Masonry Hammer • Time Zones • Avalanche Rescue Beacon
10.3: Inscribed Angles	Use inscribed angles to solve problems. Use properties of inscribed polygons.	<ul style="list-style-type: none"> • Theater Design • Carpenter's Square
10.4: Other Angle Relationships in Circles	Use angles formed by tangents and chords to solve problems in geometry. Use angles formed by lines that intersect a circle to solve problems.	<ul style="list-style-type: none"> • Views • Fireworks
10.5: Segment Lengths in Circles	Find the lengths of segments of chords. Find the lengths of segments of tangents and secants.	<ul style="list-style-type: none"> • Aquarium Tank • Designing a Logo • Global Positioning System
10.6: Equations of Circles	Write the equation of a circle. Use the equation of a circle and its graph to solve problems.	<ul style="list-style-type: none"> • Lighting • Cell Phones • Wankel Engine: Releaux Triangle
10.7: Locus	Draw the locus of points that satisfy a given condition. Draw the locus of points that satisfy two or more conditions.	<ul style="list-style-type: none"> • Locating an Epicenter • Dog Leash

Study Strategy

Answer Your Questions is the study strategy featured in Chapter 10 (see page 594). Encourage your student to make a list of questions whenever he or she doesn't understand something, especially problems assigned for homework. If you can't answer the questions, have your student ask the teacher and then record the answer in his or her math notebook.

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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	Point C is the center of a circle, point A is on the circle, and point B is outside the circle. $AC = 5$, $AB = 12$, and $BC = 14$. Is \overleftrightarrow{AB} tangent to circle C ? Explain.
10.2	Find $m\widehat{RS}$, $m\widehat{RPS}$, $m\widehat{PS}$, and $m\widehat{PR}$.
10.3	In the circle for the Exercise in Lesson 10.2, find $m\angle RPS$.
10.4	A meteorite flashes brightly 11 miles above sea level. Find the approximate measure of the arc that represents the part of Earth that can see the meteorite. Use 4000 miles for the radius of Earth.
10.5	You are standing about 4 feet from a circular silo. The distance from you to a point of tangency on the silo is 8 feet. Estimate the radius of the silo.
10.6	The listening area of a radio station is anywhere within 30 miles of the station's tower. If you are on a road 20 miles east and 20 miles south of the tower, can you hear the station? Explain.
10.7	You are given readings from three seismographs. At both $(2, -5)$ and $(1, 2)$ the epicenter is 5 miles away. At $(-2, 4)$ the epicenter is 6 miles away. Where is the epicenter?

Home Involvement Activity

You Will Need: A map of your town or neighborhood, compass, and straight-edge.

Directions: Find a place you might live so three commuters in your family have the same distance to travel each day. On the map, mark the location of three places family members travel to the most. For example, mark your place of work and your student's school. If family members commute to only two places, mark the place where you shop most often. Use the properties of circles to construct the point that is equidistant from all three points. Is the central point in a residential area?

10.1: no; $\triangle ABC$ is not a right triangle because $5^2 + 12^2 \neq 14^2$. 10.2: 80° ; 80° ; 280° ; 140° ; 140° . 10.3: 40° . 10.4: about 8° . 10.5: 6 ft. 10.6: yes; the point $(20, -20)$ is inside the listening area which is defined by the equation $x^2 + y^2 = 30^2$. 10.7: at $(-2, -2)$.

Answers

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