

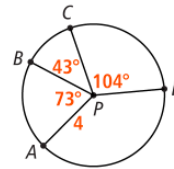
Geometry Unit 10: Topic 10
Updated Nov. 2021

| Marking Period | Unit Title | Recommended Instructional Days |
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| 4 | Circles | 10-15 |
| Domain: | | Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLs-CLKS within Unit |
| <p><i>NJSLs Strand:</i> G.C.A.1: Prove that all circles are similar. G.C.A.2: Identify and describe relationships among inscribed angles, radii, and chords. G.C.A.4: Construct a tangent line from a point outside a given circle to the circle. G.C.B.5: Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for area of a sector.</p> | <p><i>Progress Indicator:</i> Tests • Quizzes • Practice problems for homework • Online textbook • Worksheets • IXL • Leveled assessments</p> | <p style="text-align: center;">Essential Questions:</p> <ol style="list-style-type: none"> 1. How are arc length and sector area related to circumference and area of a circle? 2. How is a tangent line related to the radius of a circle at the point of tangency? 3. How are chords related to their central angles and intercepted arcs? 4. How is the measure of an inscribed angle related to its intercepted arc? 5. How are the measures of angles, arcs, and segments formed by intersecting secant lines related? <p>Activity Description:</p> <ul style="list-style-type: none"> • Arcs and Sectors • Lines Tangent to a Circle • Chords • Inscribed Angles • Secant Lines and Segments |

Example Tasks:

Task 1:

What is the length of AD ? Express the answer in terms of π .



Step 1

Find the arc measure. Note that each arc measure is equal to the measure of the corresponding central angle.

$$\begin{aligned} m\widehat{AD} &= 360 - m\widehat{AB} - m\widehat{BC} - m\widehat{CD} \\ &= 360 - 73 - 43 - 104 \\ &= 140 \end{aligned}$$

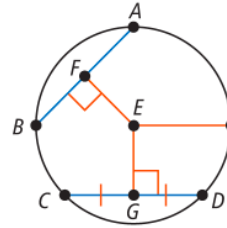
Step 2

Find the arc length. Use the formula for arc length for angles given in degrees.

$$\begin{aligned} s &= \frac{n}{360} \cdot 2\pi r \\ &= \frac{140}{360} \cdot 2\pi(4) = \frac{28}{9}\pi \end{aligned}$$

Task 2:

If $EF = EG$ and $DG = 16$, what is AB ?



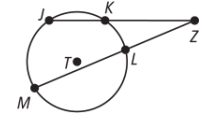
$EF = EG$ is given, so $\overline{EF} \cong \overline{EG}$ by the definition of congruent segments.
 $\overline{AB} \cong \overline{CD}$ by Theorem 10-5.
 $CD = CG + DG = 32$ by the Segment Addition Postulate.
 $AB = 32$ by the Substitution Property.

Task 3:

If $m\widehat{JK} = 65$, $m\widehat{JM} = 87$, and $m\widehat{LM} = 167$, what is $m\angle Z$?

$$\begin{aligned} m\widehat{KL} &= 360 - m\widehat{JK} - m\widehat{JM} - m\widehat{LM} \\ &= 360 - 65 - 87 - 167 \\ &= 41 \end{aligned}$$

$$\begin{aligned} m\angle Z &= \frac{1}{2} (m\widehat{JM} - m\widehat{KL}) \\ &= \frac{1}{2} (87 - 41) \\ &= 23 \end{aligned}$$



Interdisciplinary Connections:

Topic 10 Project, enVision STEM: Design Space Cities. Textbook page 418 and online

Career Readiness, Life Literacies and Key Skills **Content: Design; Engineering; Construction.** NJSL-S#: G.CO.A.1, G.C.B.5, C.A.2)
(Next Generation Science Standards ETS1-2)

Spot Light On:

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| | | <ul style="list-style-type: none"> Wanda Diaz-Merced - astronomer best known for using sonification to turn large data sets into audible sound. |
| Mathematics Practices | | |
| <ol style="list-style-type: none"> Make sense of problems and persevere in solving them. Reason abstractly and quantitatively. Construct viable arguments and critique the reason of others. Model with mathematics. Use appropriate tools strategically. Attend to precision. Look for and make use of structure. Look for and express regularity in repeated reasoning. | | |
| Social and Emotional Learning: Competencies | Social and Emotional Learning: Sub-Competencies | |
| <p>Self- awareness</p> <p>Social Awareness</p> <p>Self- Management</p> <p>Relationship Skills</p> <p>Responsible Decision-Making</p> | <p>Recognizing the importance of self-confidence in handling daily tasks and challenges.</p> <p>Demonstrate an awareness of the expectations for social interactions in a variety of ways.</p> <p>Demonstrate an understanding of the need for mutual respect when viewpoints differ.</p> <p>Recognize the skills needed to establish and achieve personal and educational goals.</p> <p>Utilize positive communication and social skills to interact effectively with others.</p> <p>Develop, implement, and model effective problem solving and critical thinking skills.</p> | |
| Assessments (Formative) | | Assessments (Summative) |

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| <i>To show evidence of meeting the standard/s, students will successfully engage within:</i> | | <i>To show evidence of meeting the standard/s, students will successfully complete:</i> | |
| Formative Assessments: <ul style="list-style-type: none"> • Entry and Exit Slips • Quizzes • Self Assessments | | Benchmarks: <ul style="list-style-type: none"> • Chapter Tests • Projects Summative Assessments: <ul style="list-style-type: none"> • District Assessments • Midterms • Standardized Tests | |
| Differentiated Student Access to Content: Teaching and Learning Resources/Materials | | | |
| Core Resources | Alternate Core Resources IEP/504/At-Risk/ESL | ELL Core Resources | Gifted & Talented Core Resources |
| <ul style="list-style-type: none"> • Textbooks websites • Achieve the core • Khan Academy • Desmos • IXL | <ul style="list-style-type: none"> • Skill building worksheets • Math Manipulatives | <ul style="list-style-type: none"> • Dictionary for native languages • Videos in their native language. | <ul style="list-style-type: none"> • Leveled Assessments • Enrichment worksheets |
| Supplemental Resources | | | |
| Technology: <ul style="list-style-type: none"> • Chromebooks, Graphing Calculators, Online math manipulatives Other: <ul style="list-style-type: none"> • Zoom and Google Meets, Google Classroom, Interactive Textbooks, Private Tutoring | | | |
| Differentiated Student Access to Content: Recommended Strategies & Techniques | | | |
| Core Resources | Alternate Core Resources IEP/504/At-Risk/ESL | ELL Core Resources | Gifted & Talented Core |
| <ul style="list-style-type: none"> • Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as | <ul style="list-style-type: none"> • Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple | <ul style="list-style-type: none"> • Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental | <ul style="list-style-type: none"> • Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, |

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| <p>needed, modify assessments and/or rubrics, repeat</p> | <p>explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.</p> | <p>materials including use of an online bilingual dictionary, and modified assessment and/or rubric.</p> | <p>propose interest-based extension activities, and connect student to related</p> |
| <p>NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS</p> | <p>Disciplinary Concept: Creativity and Innovation</p> | | |
| | <p><i>Core Ideas:</i></p> | <p>With a growth mindset, failure is an important part of success</p> | |
| | <p><i>Performance Expectation/s:</i></p> | <p>9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).</p> | |
| | <p>Career Readiness, Life Literacies, & Key Skills Practices</p> | | |
| | <p>Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration and communicate effectively. Work productively in teams while using cultural/global competence.</p> | | |

(place an "X" before each law/statute if/when present within the curriculum map)

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| | Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i> | | Holocaust Law: <i>N.J.S.A. 18A:35-28</i> | X | LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i> | | Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i> | | Standards in Action: <i>Climate Change</i> |
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