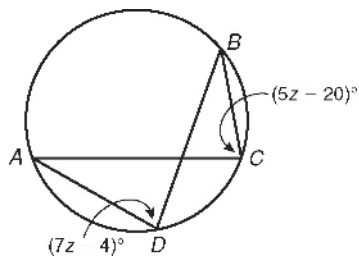


LESSON
12-4

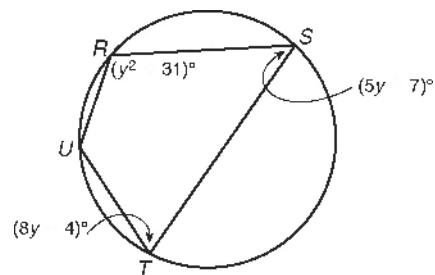
Problem Solving

Inscribed Angles

1. Find $m\widehat{AB}$.

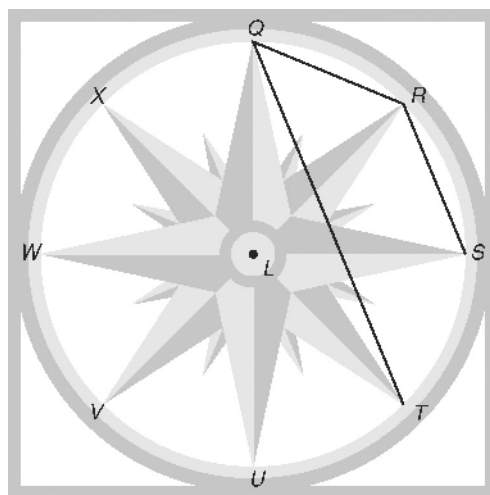


2. Find the angle measures of $RSTU$.



Choose the best answer.

Use the diagram of a floor tile for Exercises 3 and 4. Points $Q, R, S, T, U, V, W,$ and X are equally spaced around $\odot L$.



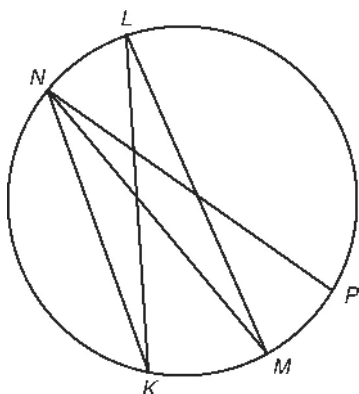
3. Find $m\angle RQT$.

- A 15° C 45°
- B 30° D 60°

4. Find $m\angle QRS$.

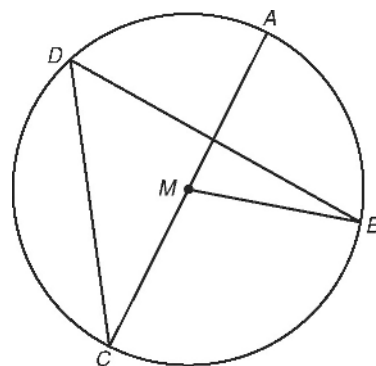
- F 67.5° H 180°
- G 135° J 270°

5. If $m\angle KLM = 20^\circ$ and $m\widehat{MP} = 30^\circ$, what is $m\angle KNP$?



- A 25° C 50°
- B 35° D 70°

6. In $\odot M$, $m\angle AMB = 74^\circ$. What is $m\angle CDB$?



- F 37° H 74°
- G 53° J 106°

7. $132^\circ; 90^\circ; 48^\circ; 90^\circ$
 8. $101^\circ; 86^\circ; 79^\circ; 94^\circ$

Challenge

1. chord; inscribed
 2. a. 45°
 b. 67.5°
 c. $|180 - 11.25n|$
 d. $0 < |n - 16| < 16$
 e. $\left|180 - \frac{360n}{p}\right|$, or $\left[180\left(1 - \frac{2n}{p}\right)\right]$,
 where $0 < n - \left|n - \frac{p}{2}\right| < \frac{p}{2}$
 f. Answers will vary. Students may choose any values of n and p for which $\frac{n}{p} = \frac{5}{12}$. Sample answer: $n = 15, p = 36$

Problem Solving

1. 160°
 2. $112^\circ; 52^\circ; 68^\circ; 128^\circ$
 3. C
 4. G
 5. B
 6. G

Reading Strategies

1. half
 2. $m\angle A + m\angle C = 180; m\angle B + m\angle D = 180$
 3. 31°
 4. 60°
 5. 124°
 6. 60°
 7. 56°
 8. 120°

Answers for Unit 4

13-1 COMPLEX NUMBERS AND ROOTS

Practice A

1. $3i; 7i - 1; -2i$
 2. i
 3. -1
 4. a
 5. bi
 6. $2i$
 7. $9i$
 8. $-9i$
 9. $8i$
 10. $5i$
 11. $21i$
 12. $1 - 2i$

13. $-5i$
 14. $2 + 3i$

15. a. $x = \sqrt{-25}$, so $x = 5i$ and $-5i$.
 b. Possible answer: You could multiply $(x + 5i)(x - 5i)$ to get the original expression.
 16. a. $x = \sqrt{-16}$, so $x = 4i$ and $-4i$.
 b. Possible answer: You could multiply $(x + 4i)(x - 4i)$ to get the original expression.

Practice B

1. $4i\sqrt{2}$
 2. $6i\sqrt{2}$
 3. $\frac{1}{3}i$
 4. $x = \pm 3i\sqrt{3}$
 5. $x = \pm i\sqrt{7}$
 6. $x = \pm 4i\sqrt{3}$
 7. $x = \pm i\sqrt{21}$
 8. $x = 4, y = 5$
 9. $x = -\frac{1}{3}, y = \frac{1}{2}$
 10. $x = 1 \pm i\sqrt{3}$
 11. $x = -3 \pm i\sqrt{5}$
 12. $-3 - i$
 13. $-4 - 3i$
 14. $-11i$
 15. $3 \pm i\sqrt{11}$

Practice C

1. $x = \pm 2i\sqrt{14}$
 2. $x = \pm i\sqrt{11}$
 3. $x = 3 \pm i\sqrt{11}$
 4. $x = 2 \pm 2i$
 5. $x = 1 \pm i\sqrt{2}$
 6. $x = \frac{5}{3}, y = 1$
 7. $x = -6, y = -8$
 8. $x = 2, y = 0.25$
 9. $-25 - i\sqrt{3}$
 10. $\frac{12}{5} + 5i$
 11. $-2 + 1.5i$

12. Imaginary; possible answer: since a is positive, the parabola opens upward and the vertex is at the minimum. Since the function is in vertex form, you can tell that the vertex is at $(1, 5)$. With a minimum at 5, the function never crosses the x -axis, so the zeros have to be imaginary.