GEOMETRY

Exam 10

Based on Chapter 10 (pages 648 - 715) in your textbook.

Student's Name _____ Student Number _____

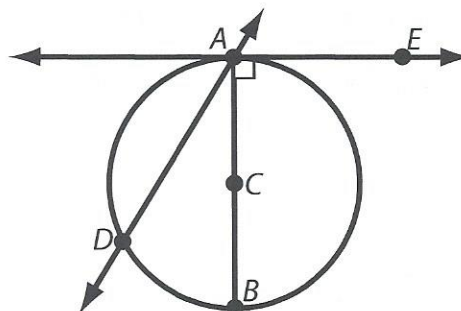Street _____ City _____ State _____ Zip Code _____

BE SURE YOU FULLY UNDERSTAND ALL CHECKPOINT PROBLEMS FROM THIS CHAPTER **BEFORE** YOU COMPLETE THIS EXAM. **SHOW** AS MUCH **WORK** AS POSSIBLE.

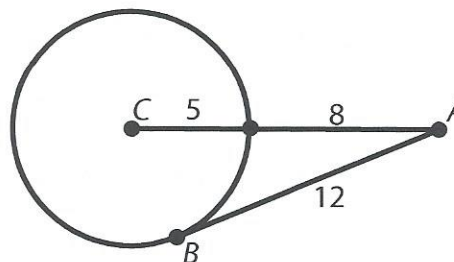1. Give an example of each term using the diagram.

   Radius: _____   Center: _____

   Tangent: _____   Diameter: _____
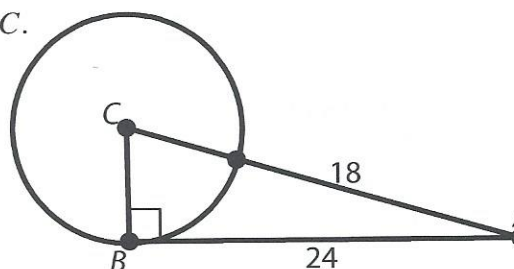
   Chord: _____   Secant: _____

Items 2-4: Circle T (true) or F (false).

2. T   F   Tangent circles always have exactly one common tangent.

3. T   F   Concentric circles have no common tangent.

4. T   F   Two coplanar circles with two points of intersection will have four common tangents.

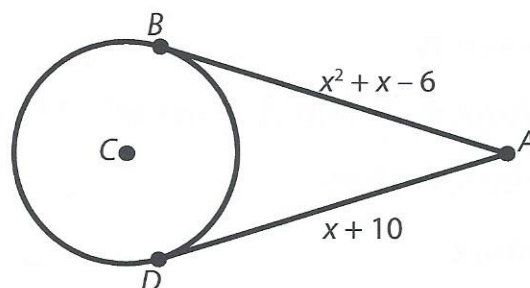5. Is $\overline{AB}$ tangent to $\odot C$? Explain why or why not.

6. Given B is a point of tangency, find the radius of $\odot C$.

   _____

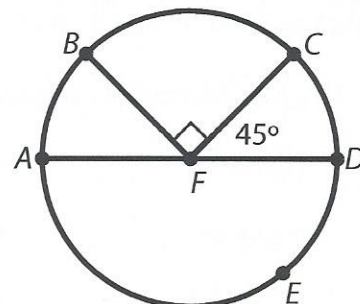7. Points B and D are points of tangency. Find the two possible lengths of $\overline{AB}$.

$AB =$ _____ or _____

8. $\overline{AD}$ is a diameter of $\odot F$. Find the following arc measures:

$m\overset{\frown}{BC} =$ _____ $m\overset{\frown}{CD} =$ _____ $m\overset{\frown}{AD} =$ _____

$m\overset{\frown}{AB} =$ _____ $m\overset{\frown}{AC} =$ _____ $m\overset{\frown}{AEC} =$ _____

9. $\overline{AD}$ and $\overline{BE}$ are diameters of $\odot F$. $\overline{FD}$ bisects $\overset{\frown}{CDE}$.

$m\overset{\frown}{BE} =$ _____ $m\overset{\frown}{CE} =$ _____ $m\overset{\frown}{DE} =$ _____

$m\overset{\frown}{AB} =$ _____ $m\overset{\frown}{AE} =$ _____ $m\overset{\frown}{AEB} =$ _____
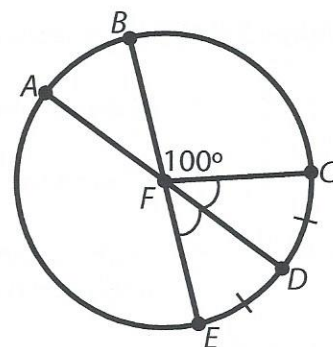
10. $\overline{AC}$ and $\overline{BD}$ are diameters. Circle Yes or No to each question.

    Yes   No   Is $m\overset{\frown}{AD} = m\overset{\frown}{BC}$?

    Yes   No   Is $m\overset{\frown}{AB} = m\overset{\frown}{CD}$?

    Yes   No   Is $m\overset{\frown}{AB} = m\overset{\frown}{BC}$?
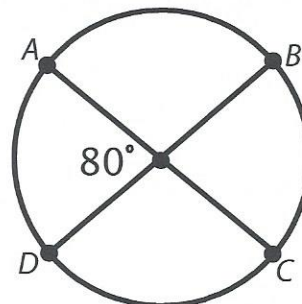
11. Find $m\overset{\frown}{AB}$ and $m\overset{\frown}{BC}$.

$m\overset{\frown}{AB} =$ _____
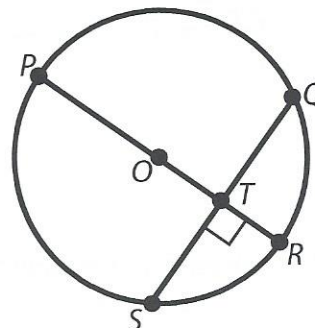
$m\overset{\frown}{BC} =$ _____

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GEOMETRY Exam 10 — Continued
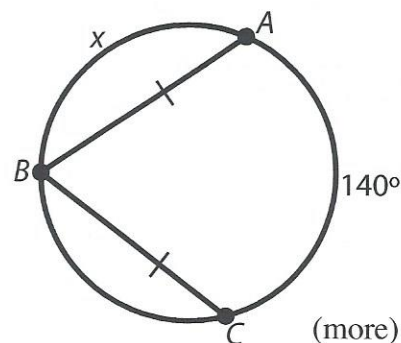
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Items 12-13: Use the diagram at the right, in which $\overline{PR}$ is a diameter of $\odot O$.

12. If $m\overset{\frown}{QR} = 50°$ then $m\overset{\frown}{QS} =$ _____

13. If $SQ = 14$, then $TQ =$ _____.

14. Finish the proof that $\overline{BD}$ is a diameter:

   Since $m\overset{\frown}{AB} = m\overset{\frown}{BC}$ then $\overline{AB} \cong \overline{CB}$ by Theorem _____.

   $\overline{BE} \cong \overline{BE}$ by Reflexive Property of Segment Congruence.

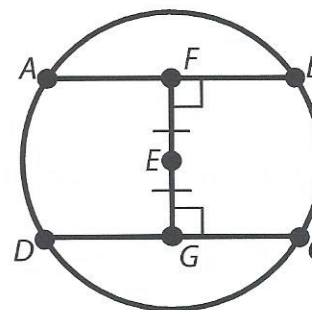   Since $\overline{AE} \cong \overline{CE}$, then $\triangle ABE \cong \triangle CBE$ by _____ $\cong$ Postulate.

   Since $\angle AEC$ is a straight angle and $m\angle AEB = m\angle CEB$,

   then both must be 90°, which makes $\overline{BD} \perp \overline{AC}$.

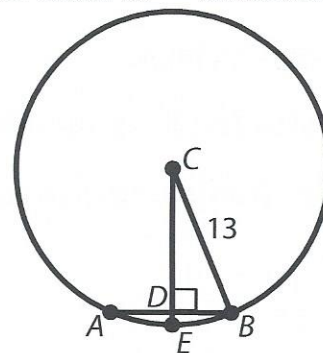   Thus $\overline{BD}$ is a diameter by Theorem _____.
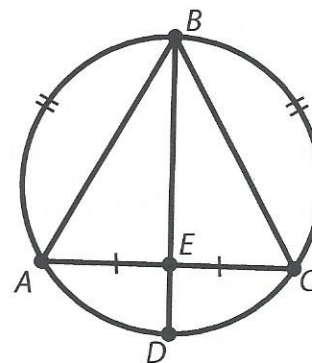
15. Explain how you know $\overline{AB} \cong \overline{CD}$, given E is the center of the circle. (Include Theorem numbers.)

(over)

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16. $\odot C$ has a radius of 13. Chord $AB = 10$.
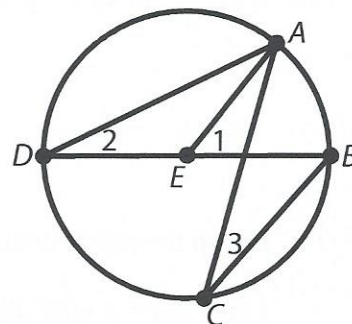   Find the distance from the center of the circle to chord AB.

    $CD =$ _____

17. Given $\odot E$ with diameter $\overline{BD}$, finish the following by writing numbers in the blanks.

    $\angle$_____ is a central angle. $\angle$_____ and $\angle$_____ are

    inscribed angles that both intercept $\overset{\frown}{AB}$. $m\angle 2 =$ _____ • $m\overset{\frown}{AB}$

    by Theorem _____. $\angle 3 \cong \angle 2$ by Theorem _____.

    $m\angle 2 =$ _____ • $m\angle 1$, so $m\angle 1 =$ _____ • $m\angle 3$.

18. Given $\odot E$ with diameter $\overline{AC}$ and $m\angle DAC = 62°$, calculate the following:

    $m\angle BAC =$ _____

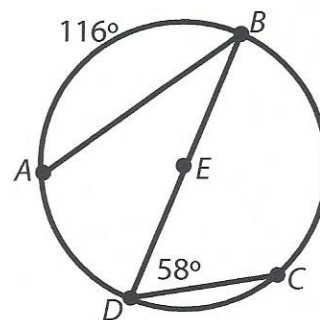 $m\overset{\frown}{AD} =$ _____

    $m\angle ABD =$ _____

    $m\angle DBC =$ _____
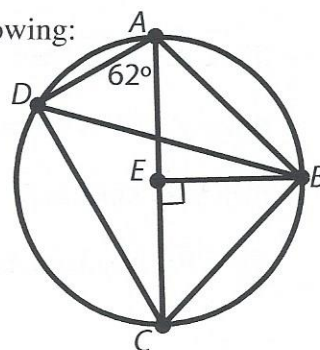
19. Given $\odot E$ with diameter BD, find $m\angle ABD$ and $m\overset{\frown}{CD}$.

    $m\angle ABD$ _____

    $m\overset{\frown}{CD} =$ _____
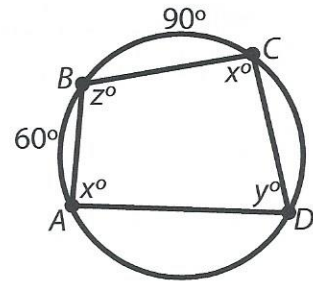
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20. Solve for x, y, and z.

    $x =$ _____

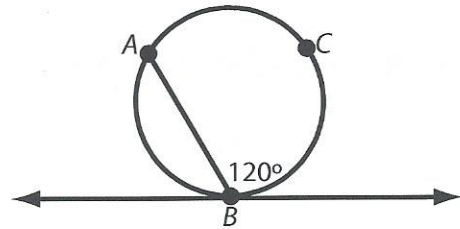 $y =$ _____

    $z =$ _____

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

    $m\widehat{AB} =$ _____

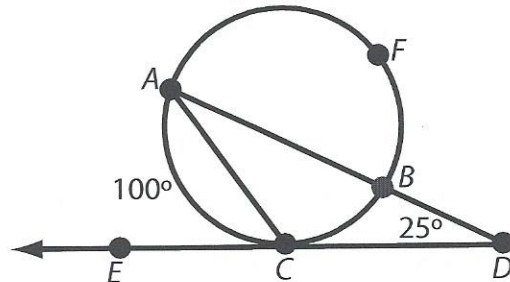22. In the figure, $m\widehat{AC} = 100°$, $m\angle ADE = 25°$, and C is the point of tangency for $\overrightarrow{DE}$. Find the following:

    $m\angle ACE =$ _____

    $m\widehat{BC} =$ _____

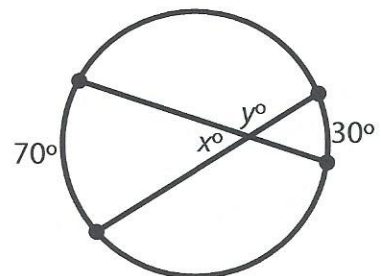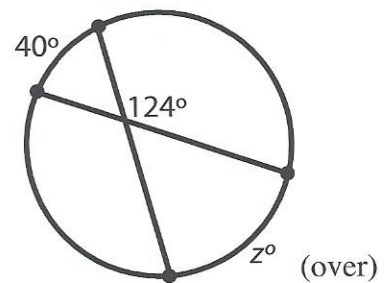 $m\widehat{AFB} =$ _____

23. Solve for x and y.

    $x =$ _____

    $y =$ _____
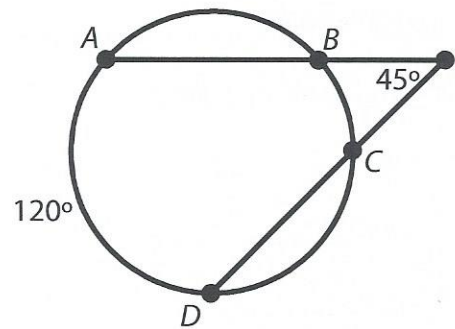
24. Solve for z.

    $z =$ _____

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25. Find $m\overset{\frown}{BC}$.

    $m\overset{\frown}{BC} =$ _____

26. If $m\overset{\frown}{ABC} = 240°$, solve for x.

    $x =$ _____

27. Solve for x.

    $x =$ _____

28. Solve for x.

    $x =$ _____
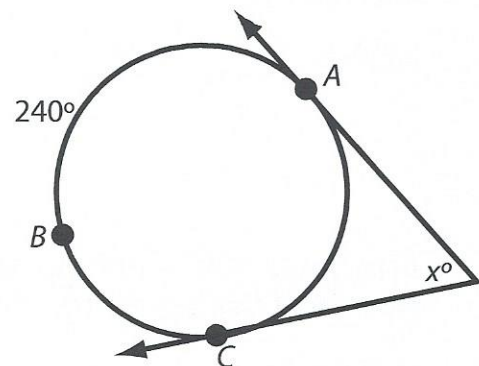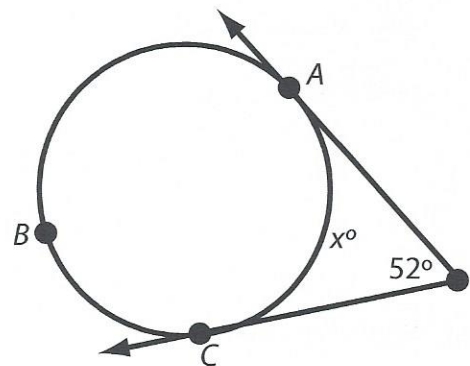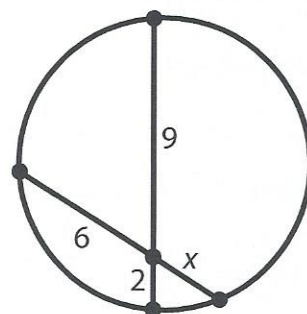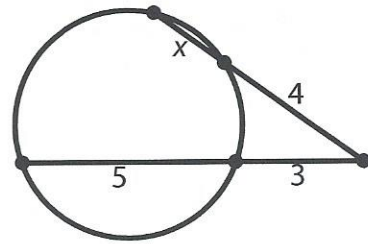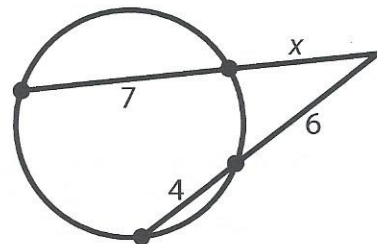
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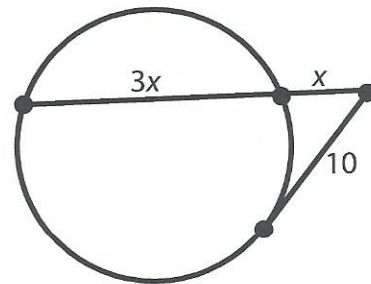
29. Solve for x.
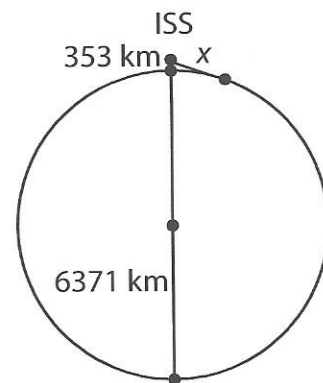
    $x =$ _____

30. Solve for x.

    $x =$ _____

31. Solve for x.

    $x =$ _____

32. The radius of the earth is approximately 6371 km. If the international space station (ISS) is orbiting 353 km above the earth, find the distance from the ISS to the horizon (x).
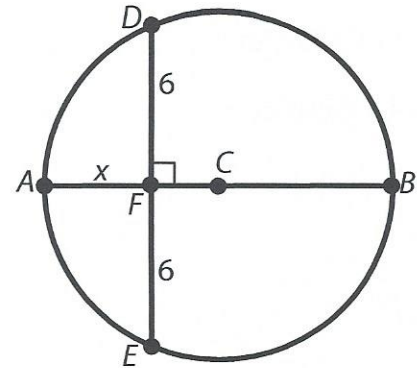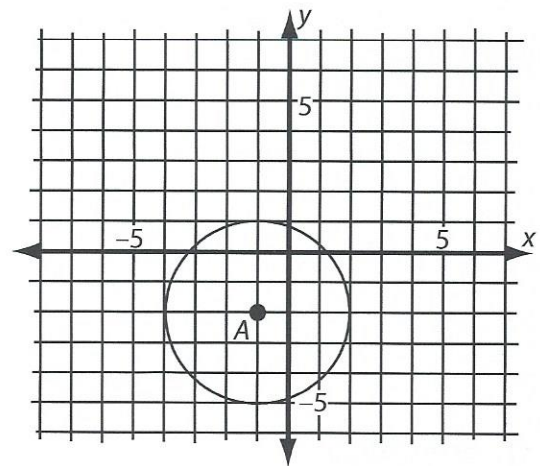
    $x =$ _____

(more)

33. If $\odot C$ has a diameter of 13, solve for x.

    $x = $ _____

34. (A) Write the standard equation form for $\odot A$.

   (B) Write the standard equation form for a $\odot B$ with center $(2, 2)$ and radius 4 and graph circle B.

   (C) The point $(1, -3)$ is on a circle with center $(-2, 1)$. Write the equation of the circle and graph it as $\odot C$.

   (D) What is the point of intersection of $\odot A$, $\odot B$, and $\odot C$?

   $(x, y) = $ _____

FILL IN YOUR NAME AND THE OTHER REQUIRED INFORMATION ON EACH PAGE
OF THE EXAM AND MAIL THE EXAM TO AMERICAN SCHOOL.