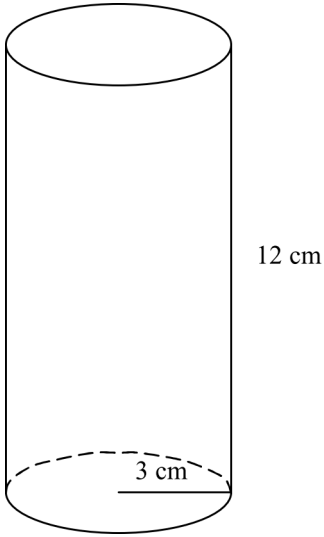


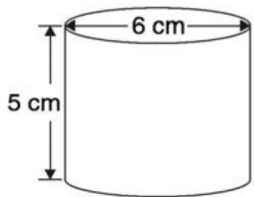
1. The right circular cylinder represented below has a base radius of 3 centimeters and a height of 12 centimeters.



What is the volume of the right circular cylinder in cubic centimeters?

- A. $36\pi\text{ cm}^3$ B. $72\pi\text{ cm}^3$ C. $108\pi\text{ cm}^3$ D. $432\pi\text{ cm}^3$

2. Use the picture below to answer the question that follows.



Which is the volume of the cylinder?

- A. 94.2 cm^3 B. 141.3 cm^3 C. 188.4 cm^3 D. 565.2 cm^3

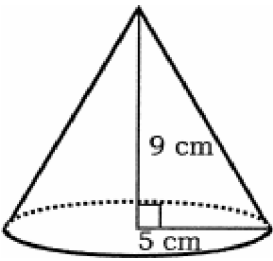
3. Rita bought yogurt in a cylinder-shaped container. The diameter of the container is 6 centimeters and the height is 5 centimeters. What is the volume of the yogurt container? (Use 3.14 for π .)

- A. 94.2 cm^3 B. 141.3 cm^3 C. 471 cm^3 D. 565.2 cm^3

4. A right cylinder has a height of 5 inches and a radius of 7 inches. What is its volume in terms of π ?

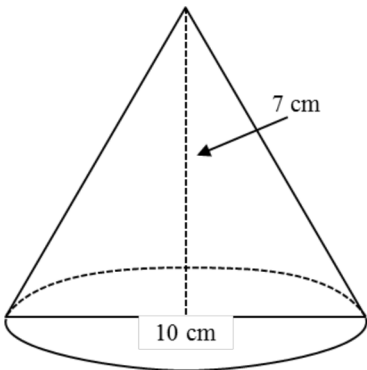
- A. 70π cubic inches B. 168π cubic inches
 C. 175π cubic inches D. 245π cubic inches

5. What is the **volume** of the given cone?



- A. $225\pi\text{ cm}^3$ B. $75\pi\text{ cm}^3$ C. $25\pi\text{ cm}^3$ D. $15\pi\text{ cm}^3$

6. What is the *approximate* volume of the cone below?



- A. 70 cm^3 B. 183 cm^3 C. 549 cm^3 D. 733 cm^3

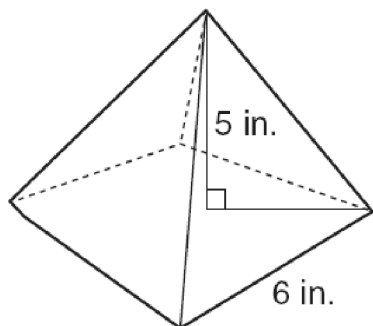
7. A pile of sand is in the shape of a cone. The diameter of the base is 24 feet and the height is 10 feet. Which of these is the volume of the pile of sand? Round the answer to the nearest cubic foot.

- A. 126 cubic feet B. 251 cubic feet
 C. 1,508 cubic feet D. 6,032 cubic feet

8. A cone-shaped paper cup is 8 centimeters high and has a diameter of 6 centimeters. How many cubic centimeters of water will it hold when full?

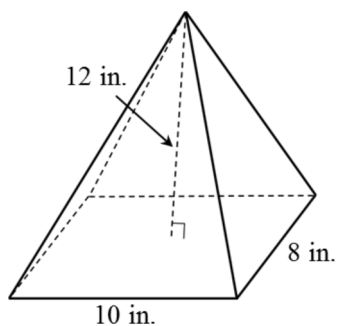
- A. 8π B. 24π C. 72π D. 96π

9. The right square pyramid represented below has a base edge of 6 inches and a height of 5 inches.



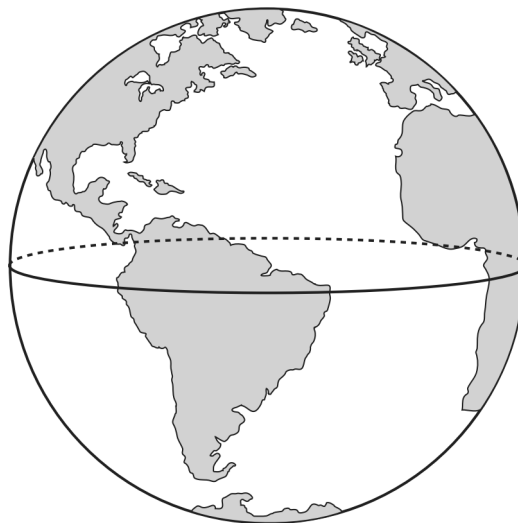
What is the volume in cubic inches of the pyramid?

- A. 60 B. 90 C. 120 D. 180
10. What is the volume of the rectangular pyramid?



- A. 72 cubic inches B. 200 cubic inches
C. 320 cubic inches D. 960 cubic inches
11. A building in the shape of a pyramid was recently built. Each side of the pyramid's square base has a length of 40 feet and the pyramid's height is 60 feet. What is the volume of the pyramid?
- A. 2,400 ft.³ B. 7,200 ft.³ C. 32,000 ft.³ D. 96,000 ft.³
12. A sphere had a 6-inch radius (r). What was the volume of the sphere?
- A. 24π cubic inches B. 32π cubic inches
C. 216π cubic inches D. 288π cubic inches

13. Tiffany wants to calculate the volume of her globe. The globe is in the shape of a sphere, as represented by the picture below. She measured the circumference of the globe along the equator to be 24 inches.



Which of the following measures is closest to the volume of Tiffany's globe?

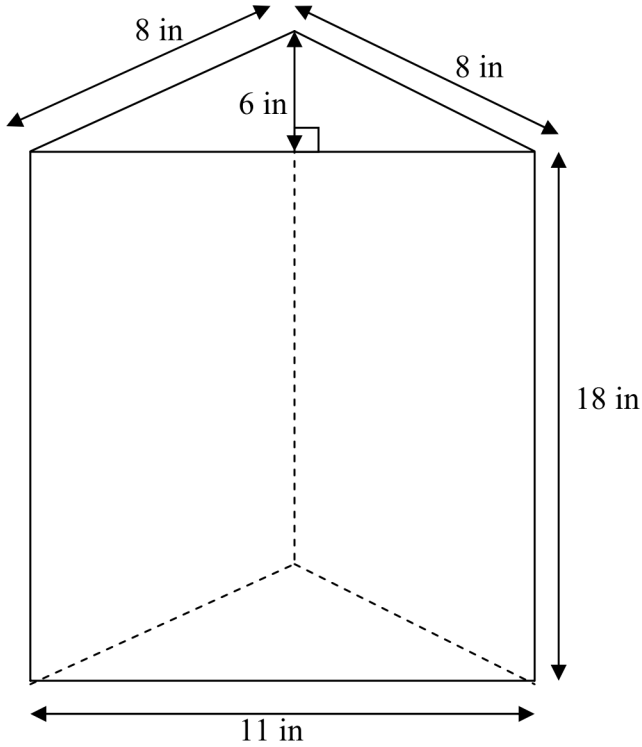
- A. 46 cubic inches B. 61 cubic inches
C. 183 cubic inches D. 234 cubic inches
14. Kate uses the formula below to calculate the volume of a sphere with radius r .
- $$V = \frac{4}{3}\pi r^3$$
- What is the approximate volume of a sphere with a radius of 3 inches? (π is approximately 3.14)
- A. 113 cubic inches B. 339 cubic inches
C. 1017 cubic inches D. 3052 cubic inches
15. A sphere has a circumference of 12π inches (in.). What is the *closest approximation* of the volume of the sphere?
- A. 452.2 in.³ B. 904.3 in.³ C. 2,713.0 in.³ D. 7,234.6 in.³
16. A regular size can of Fabulous Farms peaches has a diameter of 3 inches and a height of 5 inches. A jumbo size can of Fabulous Farms peaches has a diameter and height 2 times larger than a regular size can. The volume of the jumbo size can is how many times larger than the volume of the regular size can?
- A. 2 times larger B. 4 times larger
C. 6 times larger D. 8 times larger

17. Two containers in the shape of right circular cylinders are equal in height. The radius of the larger container is 3 times the radius of the smaller container.

The volume of the larger container is how many times the volume of the smaller container?

- A. 3 B. 6 C. 9 D. 27

18. Given the following right triangular prism. Calculate its volume (V) and surface area ($S.A.$).



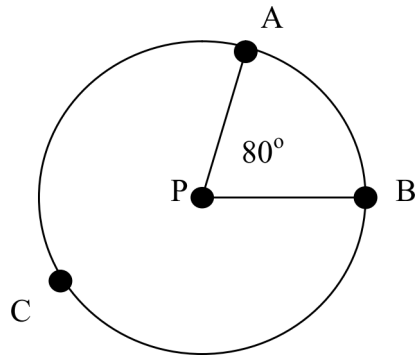
19. The formula for the volume of a right cylinder is

$$V = \pi r^2 h$$

if the r (radius) increases what happens to the V (volume of the cylinder)?

- A. increases B. decreases C. stays the same

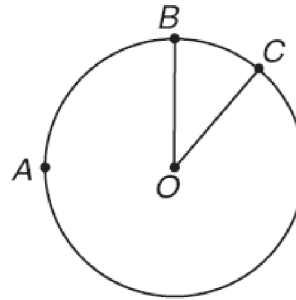
20. Points A , B , and C are on circle P .



What is the $m\widehat{ACB}$?

- A. 280° B. 220° C. 160° D. 80°

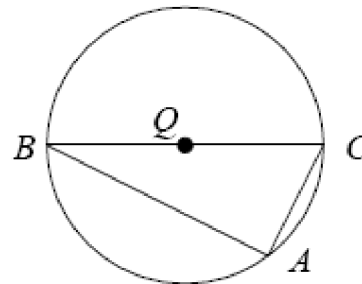
21. Points A , B , and C lie on circle O , as shown below.



What is the measure of $\angle BOC$ if the measure of arc BAC is 320° ?

- A. 40° B. 80° C. 160° D. 320°

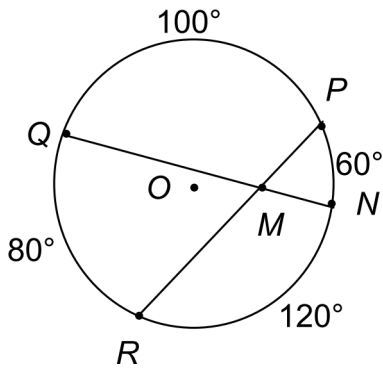
22. The points A , B , and C lie on circle Q below, in which \overline{BC} is a diameter.



In circle Q , what is the measure of angle CAB , in degrees?

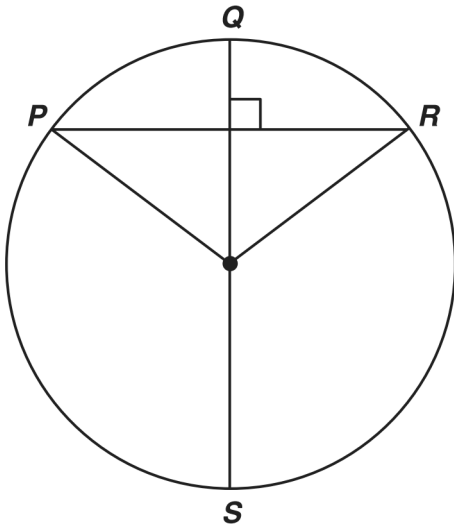
- A. 360° B. 180° C. 90° D. 60°

23. Points N , P , R , and Q lie on circle O .



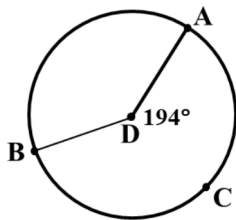
In circle O , what is the $m\angle PMN$?

- A. 30° B. 60° C. 70° D. 140°
24. \overline{QS} is a diameter of the circle below, and $\overline{QS} \perp \overline{PR}$



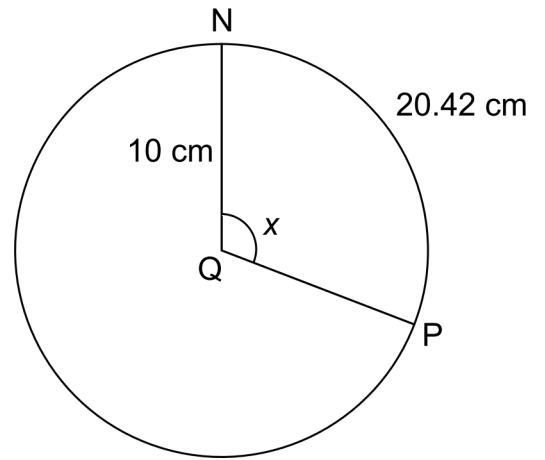
If $m\widehat{PQR} = 106^\circ$, what is $m\widehat{PS}$?

- A. 53° B. 74° C. 106° D. 127°
25. What is the length of \widehat{AB} if radius $\overline{AD} = 14$?



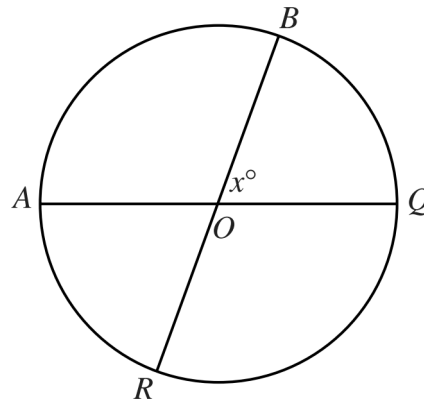
- A. Length of \widehat{AB} is 47.4 linear units.
 B. Length of \widehat{AB} is 40.45 linear units.
 C. Length of \widehat{AB} is 23.7 linear units.
 D. Length of \widehat{AB} is 2716 linear units.

26. Use the diagram to answer the question.



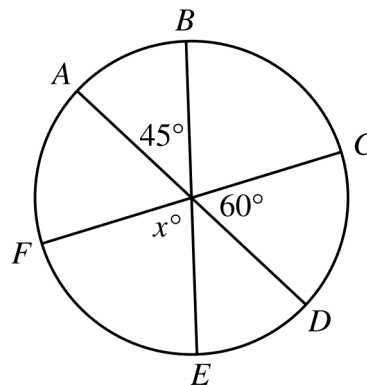
This circle, with center point Q , has a radius of 10 centimeters. The length of the minor arc NP is 20.42 centimeters. To the nearest degree, what is the value of x ?

- A. 110° B. 117° C. 204° D. 233°
27. \overline{AQ} and \overline{BR} are diameters of circle O , and the measure of minor \widehat{AB} is 110° .



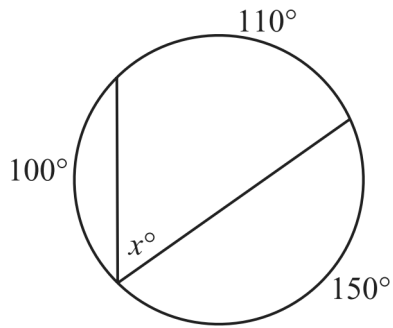
What is the value of x ?

- A. 20 B. 35 C. 70 D. 110
28. In the circle shown below, \overline{AD} , \overline{BE} , and \overline{CF} are diameters.



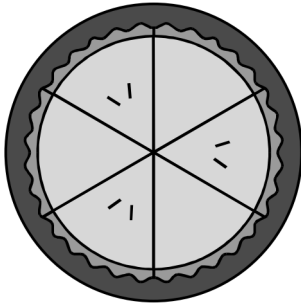
What is the value, in degrees, of x ?

29. An angle is inscribed in a circle, as shown below.



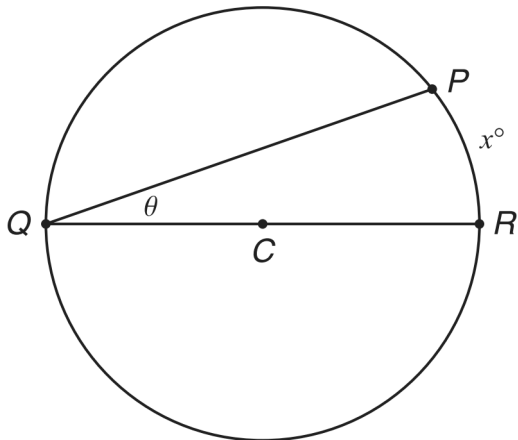
The degree measures of three arcs are shown in the diagram.
What is the value of x ?

- A. 55 B. 70 C. 75 D. 110
30. An apple pie is cut into six equal slices as shown below.



If the diameter of the pie is ten inches, what is the *approximate* arc length of one slice of pie?

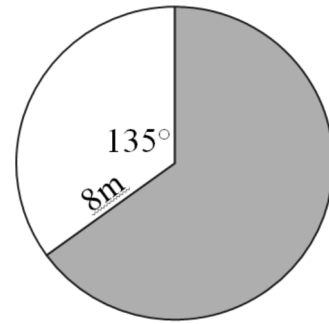
- A. 1.67 in. B. 3.14 in. C. 5.24 in. D. 13.08 in.
31. Look at circle C .



The measure of minor arc PR is x degrees. Write an expression that represents the measure, in degrees, of angle θ .

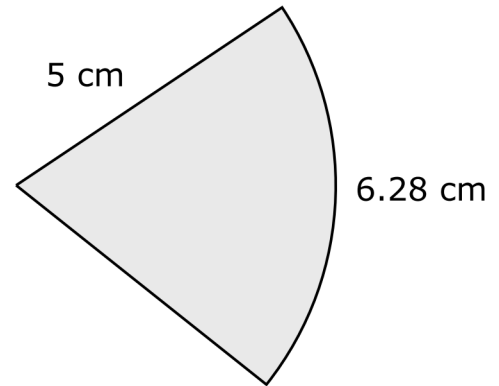
32. An inscribed angle, $\angle ABC$ of circle T , measures 81° . What is the measure of its central angle, $\angle ATC$?
- A. 9° B. 40.5° C. 162° D. 279°

33. What is the area of the shaded sector?



- A. 5π square meters B. 10π square meters
C. 24π square meters D. 40π square meters

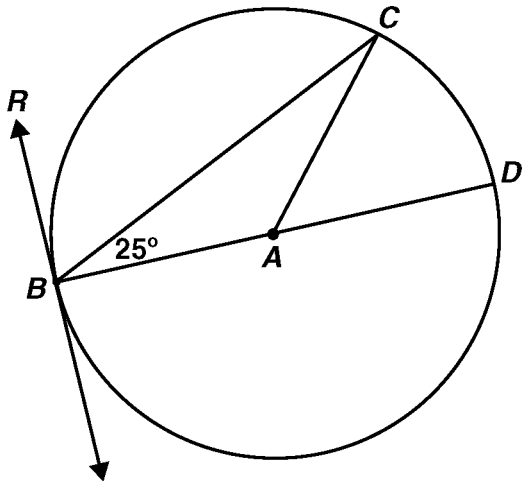
34. A sector of a circle is shown.



What is the area of the sector? (Use 3.14 for π .)

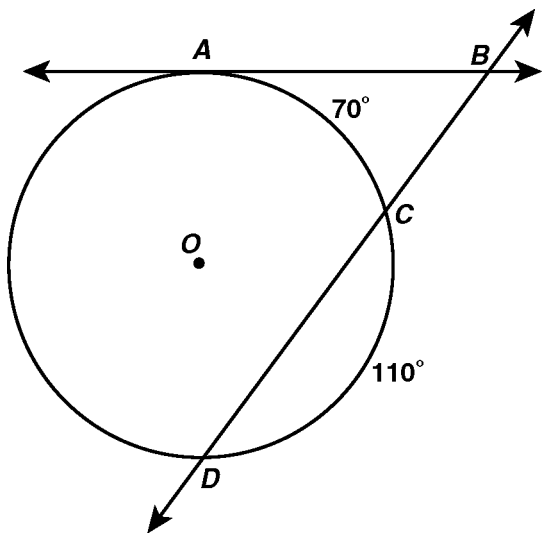
- A. 12.5cm^2 B. 15.7cm^2 C. 31.4cm^2 D. 78.5cm^2
35. What is the *approximate* area of a 70° sector of a circle with a radius of 8 inches?
- A. 5 in. B. 10 in. C. 39 in. D. 156 in.

36. \overleftrightarrow{RB} is tangent to a circle, whose center is A , at point B . \overline{BD} is a diameter.



What is $m\angle CBR$?

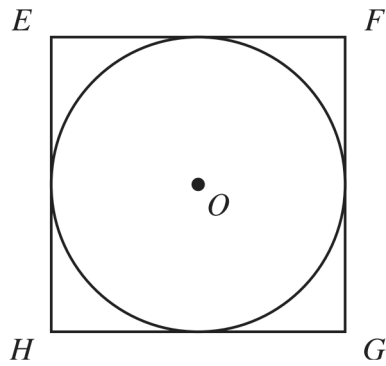
- A. 50° B. 65° C. 90° D. 130°
37. In the figure below, \overleftrightarrow{AB} is tangent to circle O at point A , secant \overleftrightarrow{BD} intersects circle O at points C and D , $m\widehat{AC} = 70^\circ$ and $m\widehat{CD} = 110^\circ$.



What is $m\angle ABC$?

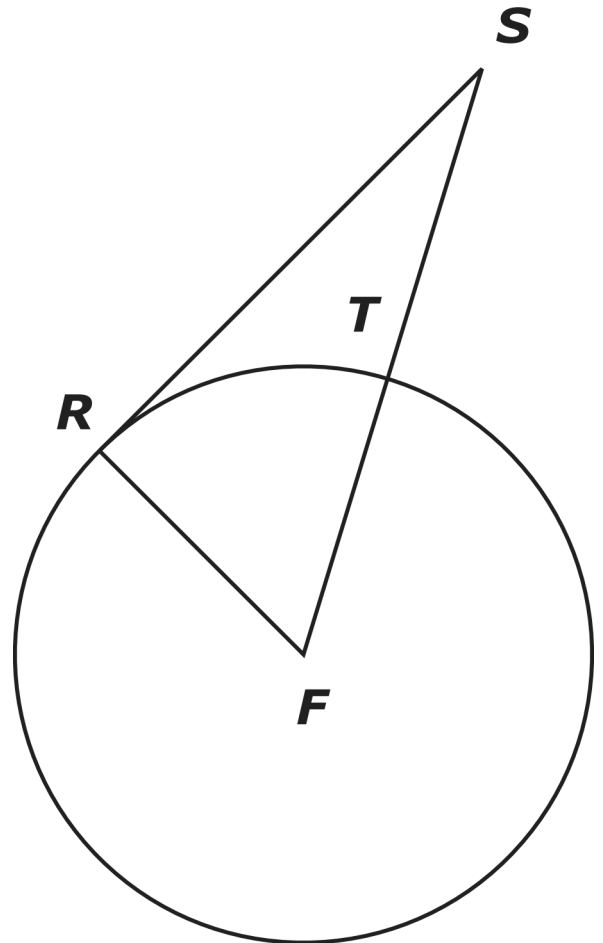
- A. 20° B. 40° C. 55° D. 70°

38. Circle O is inscribed in square $EFGH$, as shown below.



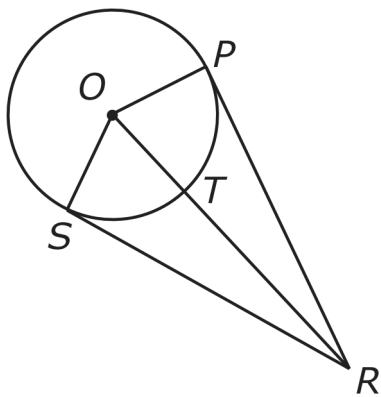
The circumference of circle O is 20 centimeters. Which of the following is closest to the perimeter of square $EFGH$?

- A. 24 cm B. 25.5 cm C. 27 cm D. 28.5 cm
39. Maggie and Wei are measuring the distance across a circular fountain indirectly as shown in the diagram.



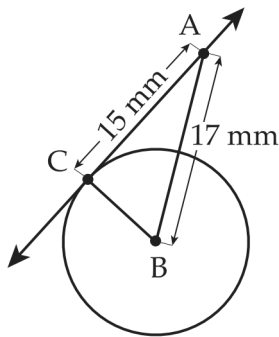
They find that the length of \overline{RS} is 15 meters and the length of \overline{ST} is 9 meters. \overline{RS} is tangent to circle F and point T is on \overline{RS} . To the nearest meter, what is the diameter of the fountain?

40. In the figure below, \overline{PR} and \overline{SR} are tangent to circle O .



If $OT = 11$ cm and $PR = 60$ cm, what is the length of \overline{OR} ?

- A. 61 cm B. 59 cm C. 50 cm D. 48 cm
41. In the figure below, \overleftrightarrow{AC} is tangent to circle B .

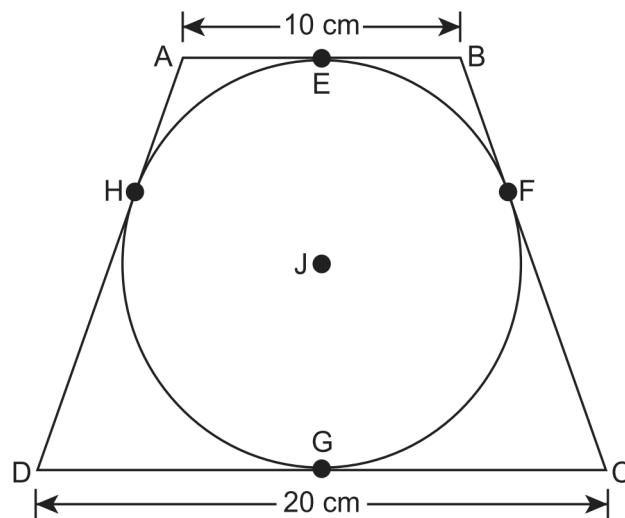


NOTE: Figure **NOT** drawn to scale.

What is the length of \overline{BC} ?

- A. 2 mm B. 4 mm C. 8 mm D. 16 mm

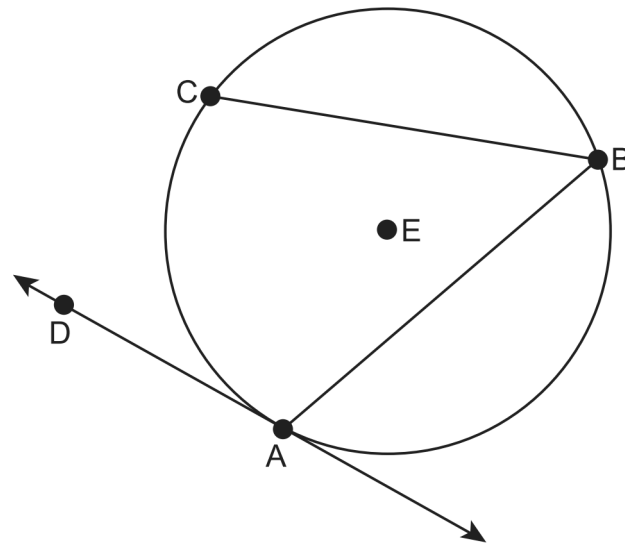
42. Circle J is inscribed in isosceles trapezoid $ABCD$, as shown below.



Points E , F , G , and H are points of tangency. The length of \overline{AB} is 10 cm. The length of \overline{DC} is 20 cm. What is the length, in cm, of \overline{BC} ?

- A. 5 B. 10 C. 15 D. 30

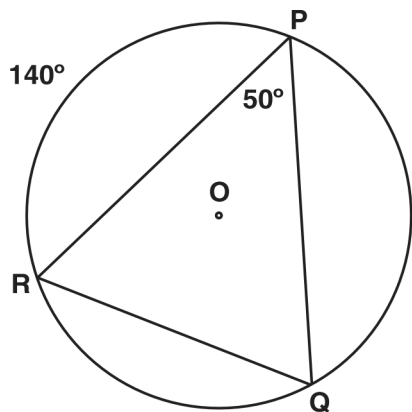
43. Circle E is shown in the diagram below.



Line AD is tangent to circle E . The measure of angle DAB is 110° . The measure of minor arc CB is 120° . What is the measure of arc CBA ?

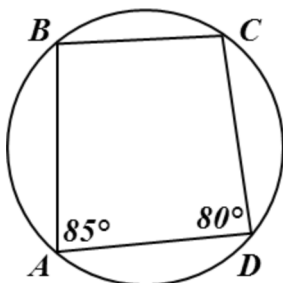
- A. 220° B. 240° C. 250° D. 260°

44. In the circle shown below, the measure of $\widehat{PR} = 140^\circ$ and the measurements of $\angle RPQ = 50^\circ$.



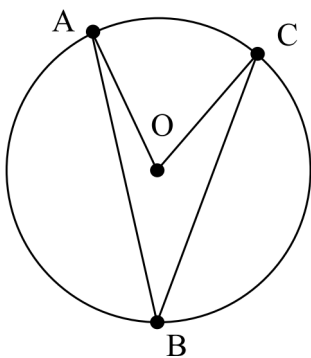
What is the measure of \widehat{PQ} ?

- A. 50° B. 60° C. 70° D. 120°
45. Quadrilateral $ABCD$ is inscribed in a circle as shown in the diagram below.



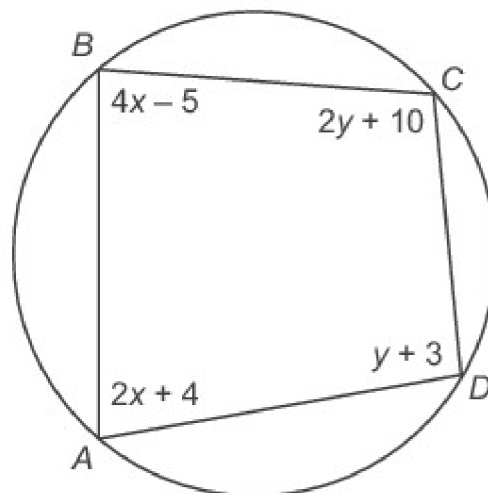
If $m\angle A = 85^\circ$ and $m\angle D = 80^\circ$, what is $m\angle B$?

- A. 80° B. 85° C. 95° D. 100°
46. In circle O , if the measure of \widehat{AC} is 82° , which statement must be true?



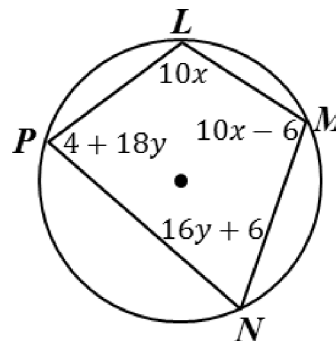
- A. $m\angle AOC = 164^\circ$ B. $m\angle ABC = 82^\circ$
 C. $m\angle ABC = 41^\circ$ D. $m\angle AOC = 41^\circ$

47. The measure of the angles of an inscribed quadrilateral are given in the figure shown.



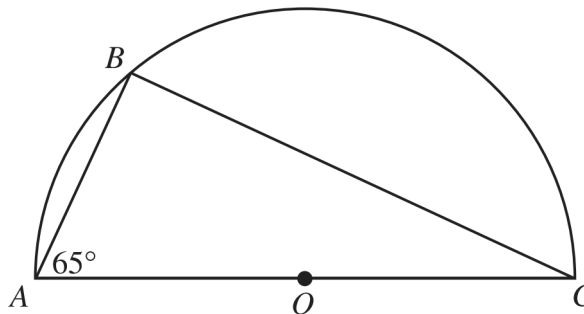
Using angle A as the reference point, which equation represents the property that opposite angles in an inscribed quadrilateral are supplementary?

- A. $2x + y = 173$ B. $4x + 2y = 175$
 C. $x + y = 97$ D. $x + y = 83$
48. Solve for x and y . What are the measures of the angles of the quadrilateral?



49. In the figure below:

- Triangle ABC is inscribed in semicircle O .
- $m\angle A = 65^\circ$



What is the measure of angle C ?

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- | | |
|---|------------------------------|
| 1.
Answer: C | 21.
Answer: A |
| 2.
Answer: B | 22.
Answer: C |
| 3.
Answer: B | 23.
Answer: C |
| 4.
Answer: D | 24.
Answer: D |
| 5.
Answer: B | 25.
Answer: A |
| 6.
Answer: B | 26.
Answer: B |
| 7.
Answer: | 27.
Answer: C |
| 8.
Answer: B | 28.
Answer: 75 |
| 9.
Answer: A | 29.
Answer: A |
| 10.
Answer: C | 30.
Answer: C |
| 11.
Answer: C | 31.
Answer: $\frac{x}{2}$ |
| 12.
Answer: D | 32.
Answer: C |
| 13.
Answer: D | 33.
Answer: D |
| 14.
Answer: A | 34.
Answer: B |
| 15.
Answer: B | 35.
Answer: C |
| 16.
Answer: D | 36.
Answer: B |
| 17.
Answer: C | 37.
Answer: C |
| 18.
Answer: Volume = 594 in^3 ; S.A. = 552 in^2 | 38.
Answer: B |
| 19.
Answer: A | 39.
Answer: 16 |
| 20.
Answer: A | 40.
Answer: A |

41.
Answer: C
42.
Answer: C
43.
Answer: D
44.
Answer: D
45.
Answer: D
46.
Answer: C
47.
Answer: D
48.
Answer: $y = 4; x = 11$
49.
Answer: 25°