1. If $\angle A > \angle B$ in ΔABC, then which of the following statements must be true?

A. $\angle A < \angle C$

B. $\angle B > \angle C$

C. $\overline{BC} > \overline{AC}$

D. $\overline{BC} > \overline{AB}$

2. If a triangle has two sides with lengths of 3.25 m and 7.2 m. Which lengths below could represent the length of the third side? Select all that apply.

F. 11.1 m

G. 4.91 m

H. 3.00 m

I. 10.45 m

J. 3.95 m

K. 1.00 m

L. 6.92 m

M. 5.00 m

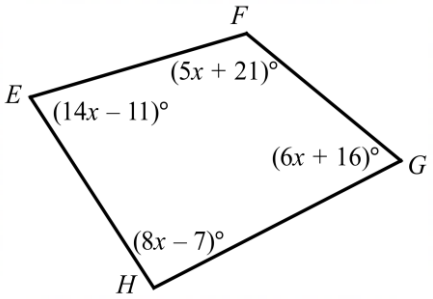
3. Given quadrilateral $EFGH$ below, what is $\angle H$?

A. $m\angle H = 32.2°$

B. $m\angle H = 67.4°$

C. $m\angle H = 75.4°$

D. $m\angle H = 95.4°$



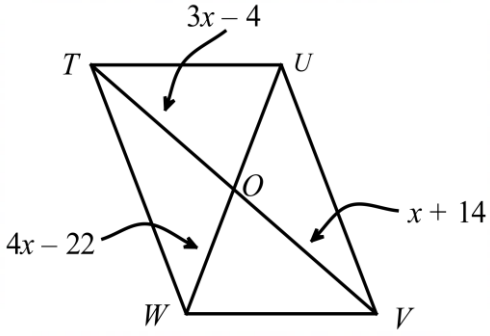
4. Use the diagram below to find WO.

A. $WO = 14$

B. $WO = 23$

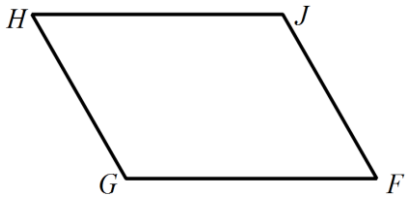
C. $WO = 26$

D. $WO = 50$



5. What is the measure of HJ in Parallelogram $FGHJ$, given the following:

- $FG = x + 7$
- $GH = 5x + 3$
- $m\angle F = 46°$
- $m\angle H = (3x + 10)°$



A. $HJ = 63$

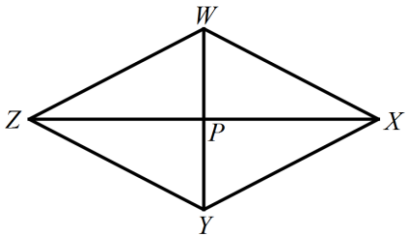
B. $HJ = 19$

C. $HJ = 12$

D. $HJ = 8$

6. Given the following information, find $m\angle XYZ$:

- WXYZ is a rhombus
- $m\angle WXP = (2x + 16)°$
- $m\angle WPX = (7x + 6)°$



A. $m\angle XYZ = 100°$

B. $m\angle XYZ = 120°$

C. $m\angle XYZ = 140°$

D. $m\angle XYZ = 160°$

7. In the diagram below, $\Delta TUV \sim \Delta XYZ$ determine which statements below are true. Select all that apply.

F. $m\angle V = m\angle Z$

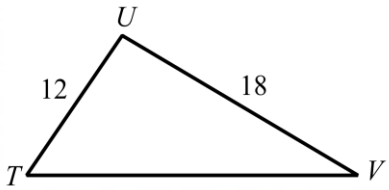
G. $m\angle V > m\angle Z$

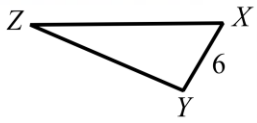
H. $TV = 2 \cdot YZ$

I. $TV = 3 \cdot YZ$

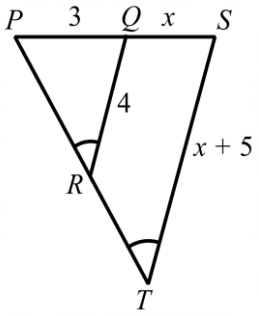
J. $\frac{TU}{XY} = \frac{XY}{YZ}$

K. $\frac{TU}{UV} = \frac{XY}{YZ}$





8. Find the length of $\overline{PS}$ in the diagram below.



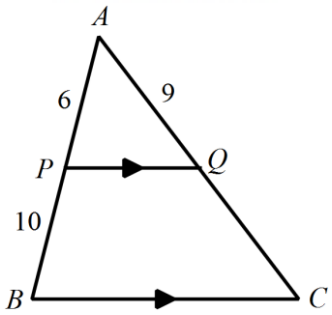
A. $PS = 5$

B. $PS = 6$

C. $PS = 8$

D. $PS = 18$

9. What is the length of $\overline{AC}$?



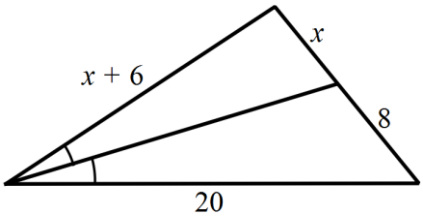
A. $AC = 28$

B. $AC = 26$

C. $AC = 24$

D. $AC = 15$

10. What is the value of *x* in the figure below?



A. $x = 4$

B. $x = 5$

C. $x = 6$

D. $x = 7$

11. A carpenter is assembling triangular support structures for a deck. The supports need to include a perfect right angle in order to be structurally safe. If the side lengths are 2.75 feet, 15 feet, and 15.25 feet, do the structures meet the safety requirements?

A. Yes, the side lengths form a right triangle because $2.75^2 + 15^2 = 15.25^2$.

B. No, the side lengths form an acute triangle because $2.75^2 + 15^2 > 15.25^2$.

C. No, the side lengths form an acute triangle because $2.75^2 + 15^2 < 15.25^2$.

D. No, the side lengths form an obtuse triangle because $2.75^2 + 15^2 > 15.25^2$.

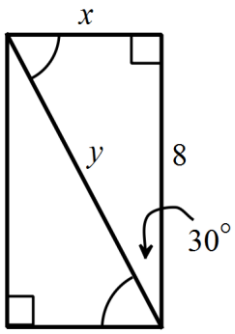
12. Find the values of x and y.

A. $x = 4, y = 4\sqrt{3}$

B. $x = 8\sqrt{3}, y = 16\sqrt{3}$

C. $x = \frac{16\sqrt{3}}{3}, y = \frac{8\sqrt{3}}{3}$

D. $x = \frac{8\sqrt{3}}{3}, y = \frac{16\sqrt{3}}{3}$



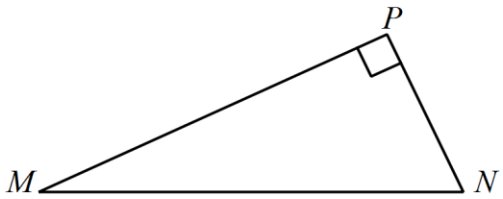
13. Given that $sin\ M = \frac{5}{13}$, What is the tan M ?

A. $\frac{5}{12}$

B. $\frac{12}{13}$

C. $\frac{12}{5}$

D. $\frac{13}{5}$



14. A 12 foot ladder is leaning up against the side of a house. The ladder is placed 10 feet from the side of the house. What is the angle of elevation of the ladder?

A. 33.6°

B. 39.8°

C. 50.2°

D. 56.4°

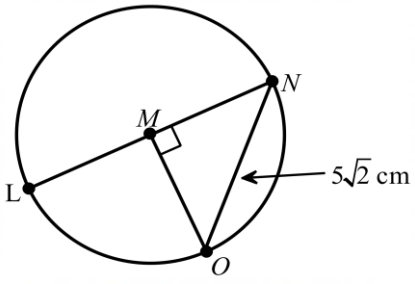
15. What is the approximate circumference of circle M?

A. 78.5 cm

B. 62.8 cm

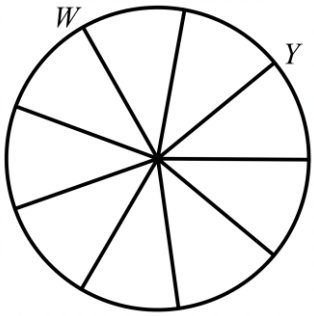
C. 44.4 cm

D. 31.4 cm



16. The circle below is divided into 9 equal sections. The diameter of the circle is $54\ mm$.

What is the arc length of $\overset{\frown}{WY}$?



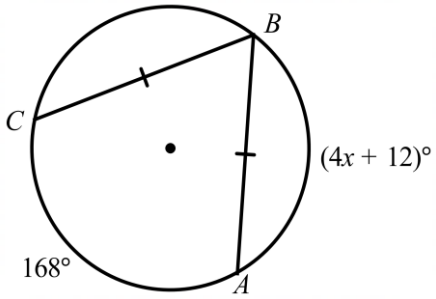
A. $6\pi\ mm$

B. $12\pi\ mm$

C. $24\pi\ mm$

D. $42\pi\ mm$

17. What is the value of x to the nearest tenth?



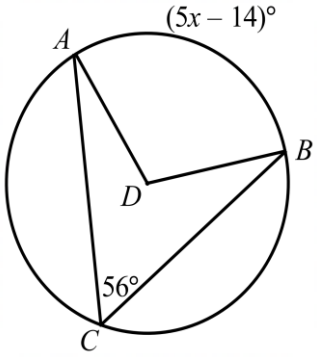
A. $x = 15$

B. $x = 18$

C. $x = 21$

D. $x = 39$

18. Given $m\overset{\frown}{AC} = m\overset{\frown}{BC}$ and $\angle ADB$ is a central angle, what is the value of x and $m\overset{\frown}{BC}$?



F. $x = 25.2$

G. $x = 8.4$

H. $x = 14.0$

I. $m\overset{\frown}{BC} = 166°$

J. $m\overset{\frown}{BC} = 152°$

K. $m\overset{\frown}{BC} = 124°$

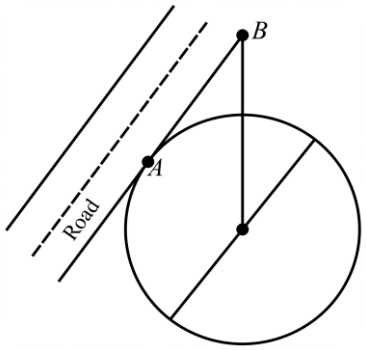
19. A road runs tangent to a circular lake. The distance from point B to the center of the lake is 100 miles. The distance from Point A to Point B on the road is 80 miles. What is the diameter of the lake?

A. 20 miles

B. 60 miles

C. 120 miles

D. 160 miles



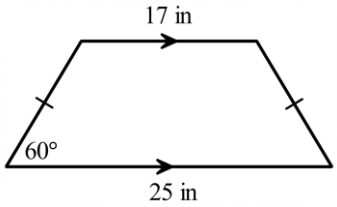
20. What is the area of the trapezoid?

A. 136 in^2

B. 168 in^2

C. $84\sqrt{3}\ in^2$

D. $100\sqrt{3}\ in^2$



21. The sector of a circle has an intercepted arc that is 30°. The area of the sector is $8\pi\ in^2$. What is the area of the entire circle?

A. $2304\pi\ in^2$

B. $240\pi\ in^2$

C. $96\pi\ in^2$

D. $64\pi\ in^2$

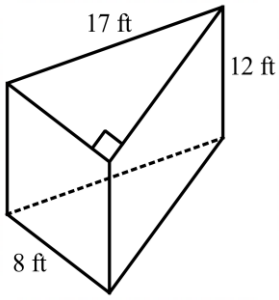
22. What is the volume of the figure below?

A. 816 ft^3

B. 720 ft^3

C. 272 ft^3

D. 240 ft^3



23. What is the radius of a sphere whose volume is 330 cubic meters ?

A. 4.29 m

B. 8.9 m

C. 78.8 m

D. *37.4m*

1) C 2) G, L, M 3) C 4) A 5) B 6) A 7) F, K 8) B 9) C
10) A 11) A 12) D 13) A 14) A 15) D
16) B 17) C 18) F, K 19) C 20) C 21) C
22) B 23) A