

12/1-2 Practice Tangents and Chords

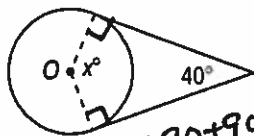
Key

Form G

Tangent Lines

Algebra Assume that lines that appear to be tangent are tangent. O is the center of each circle. What is the value of x ?

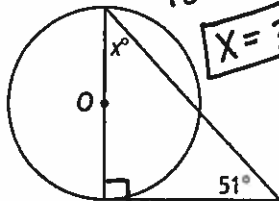
1.



$$360 = x + 90 + 90 + 40$$

$$x = 140$$

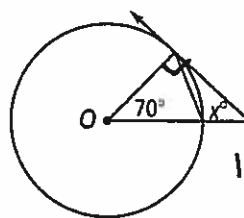
2.



$$180 = 90 + x + 51$$

$$x = 39$$

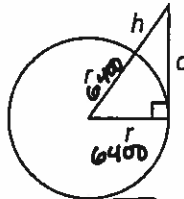
3.



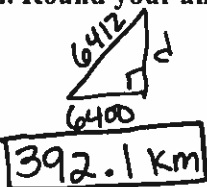
$$180 = x + 70 + 90$$

$$x = 20$$

The circle at the right represents Earth. The radius of the Earth is about 6400 km. Find the distance d that a person can see on a clear day from each of the following heights h above Earth. Round your answer to the nearest tenth of a kilometer.

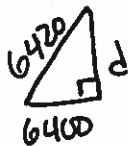


4. 12 km



$$392.1 \text{ km}$$

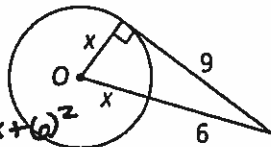
5. 20 km



$$506.4 \text{ km}$$

In each circle, what is the value of x to the nearest tenth?

7.



$$x^2 + 9^2 = (x + 6)^2$$

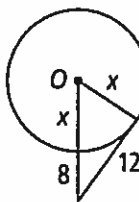
$$x^2 + 81 = x^2 + 12x + 36$$

$$45 = 12x$$

$$3.75 = x$$

$$3.8$$

8.



$$x^2 + 12^2 = (x + 8)^2$$

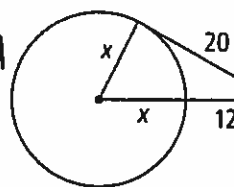
$$x^2 + 144 = x^2 + 16x + 64$$

$$80 = 16x$$

$$5 = x$$

$$5.0$$

9.



$$x^2 + 20^2 = (x + 12)^2$$

$$x^2 + 400 = x^2 + 24x + 144$$

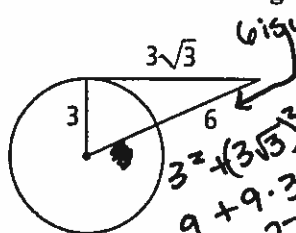
$$256 = 24x$$

$$10\frac{2}{3} = x$$

$$10.7$$

Determine whether a tangent line is shown in each diagram. Explain.

10.



6 is whole thing

$$3^2 + (3\sqrt{3})^2 = 6^2$$

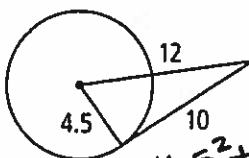
$$9 + 9 \cdot 3 = 36$$

$$9 + 27 = 36$$

$$36 = 36$$

Yes Tangent b/c Rt Δ

11.



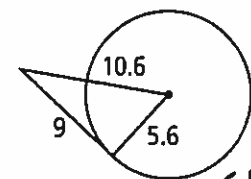
$$4.5^2 + 10^2 = 12^2$$

$$120.25 \neq 144$$

Not Rt Δ

Not Tangent

12.



$$5.6^2 + 9^2 = 10.6^2$$

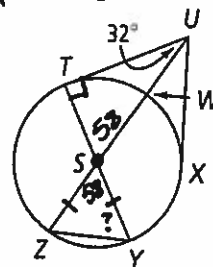
$$112.36 = 112.36$$

Yes Tangent b/c Rt Δ

13.

\overline{TY} and \overline{ZW} are diameters of $\odot S$. \overline{TU} and \overline{UX} are tangents of $\odot S$. What is $m\angle SYZ$?

$$61^\circ$$



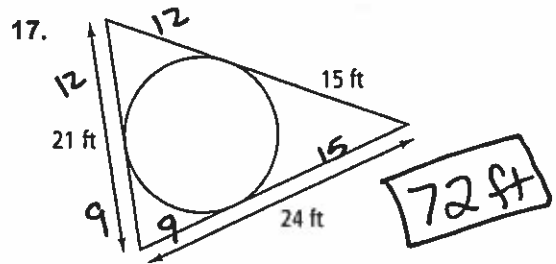
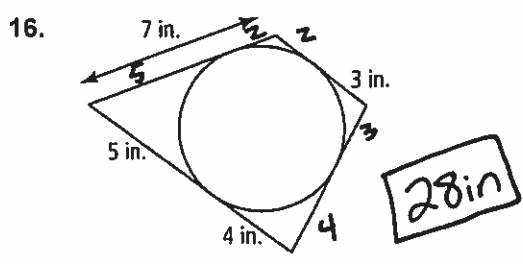
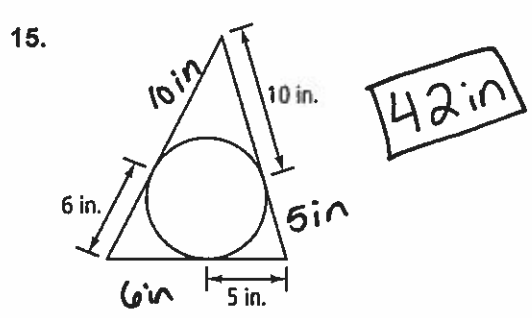
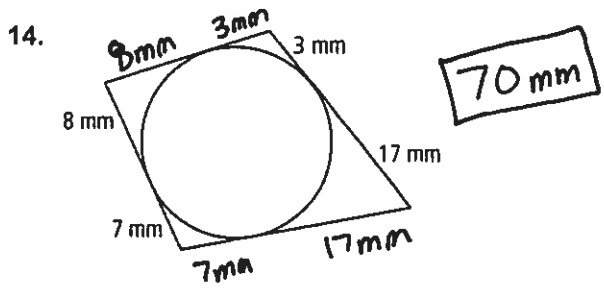
$$180 - 58 = 122$$

$$\div 2$$

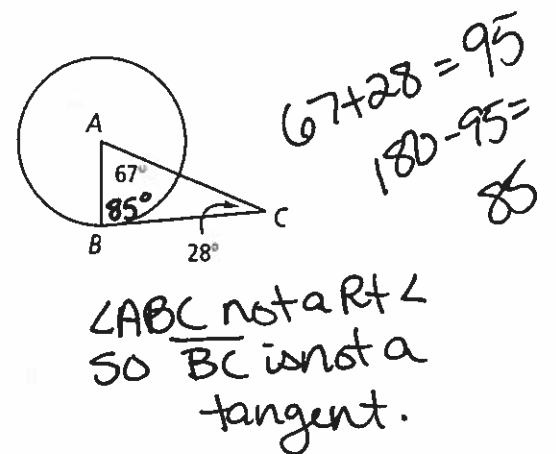
$$61$$

Tangent Lines

Each polygon circumscribes a circle. What is the perimeter of each polygon?

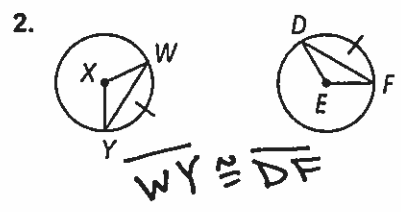
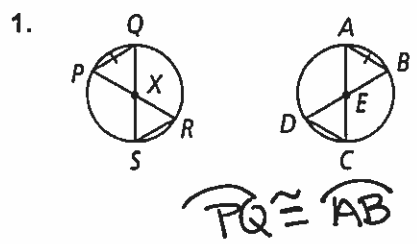


18. **Error Analysis** A classmate states that \overline{BC} is tangent to $\odot A$. Explain how to show that your classmate is wrong.

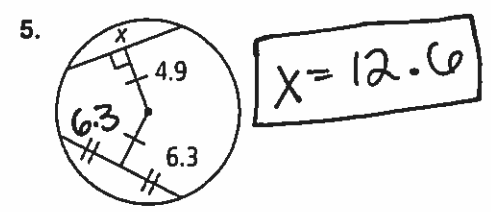
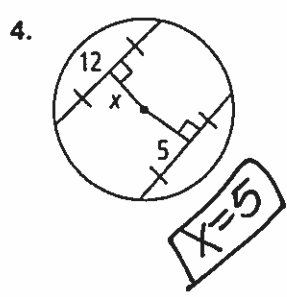
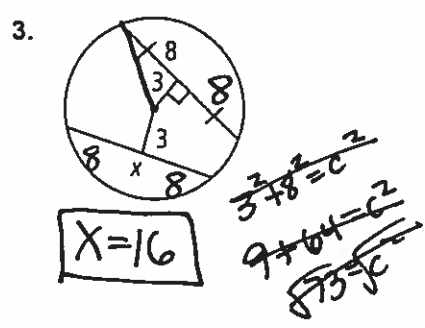


Chords 12-2:

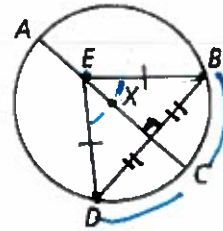
In Exercises 1 and 2, $\odot X \cong \odot E$. What can you conclude?



Find the value of x .

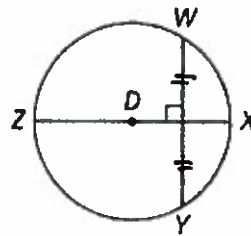


6. In $\odot X$, \overline{AC} is a diameter and $\overline{ED} \cong \overline{EB}$. What can you conclude about \widehat{DC} and \widehat{CB} ? Explain.



Since $\overline{EB} \cong \overline{ED}$, \overline{EC} is the bisector of \widehat{DB} . This makes the diameter \perp to the chord so it bisects the chord and its intercepted Arc. Therefore $\widehat{DC} \cong \widehat{CB}$.

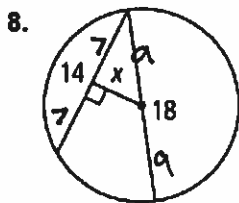
7. In $\odot D$, \overline{ZX} is the diameter of the circle and $\overline{ZX} \perp \overline{WY}$. What conclusions can you make? Justify your answer.



\overline{WY} is bisected by \overline{ZX} b/c diameter \perp to it.

$$\widehat{WX} \cong \widehat{XY}$$

Find the value of x to the nearest tenth.



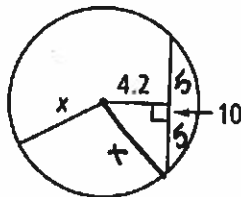
$$7^2 + x^2 = 9^2$$

$$49 + x^2 = 81$$

$$\sqrt{x^2} = \sqrt{32}$$

$$x = 4\sqrt{2}$$

$$5.7$$

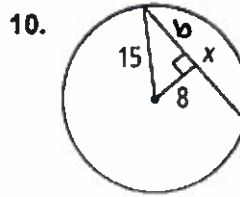


$$4.2^2 + 5^2 = x^2$$

$$17.64 + 25 = x^2$$

$$42.64 = x^2$$

$$6.5 = x$$



$$8^2 + b^2 = 15^2$$

$$64 + b^2 = 225$$

$$b^2 = 161$$

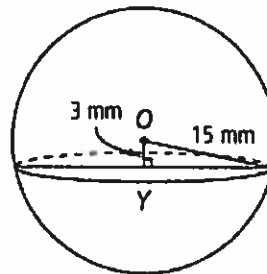
$$b = 12.68857754$$

$$2b = x$$

$$x = 25.4$$

11. In the figure at the right, sphere O with radius 15 mm is intersected by a plane 3 mm from the center. To the nearest tenth, find the radius of the cross section $\odot Y$.

$$14.7 \text{ mm}$$



$$3^2 + x^2 = 15^2$$

$$9 + x^2 = 225$$

$$\sqrt{x^2} = \sqrt{216}$$

$$x = 14.7$$