Name________________

Write your questions here!

Tangents

What is a ***tangent*** to a circle?

A tangent is ψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψψφ

Key words: Tangent, Point of Tangency, Radius

What theorems exist involving tangents and circles?

Tangent Theorem #1: ______________________________ ;t

____

(Converse of Theorem #1): ______________________________

____

Tangent Theorem #2: ______________________________

____

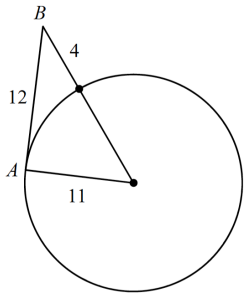
PACKET 11.1: TANGENT LINES

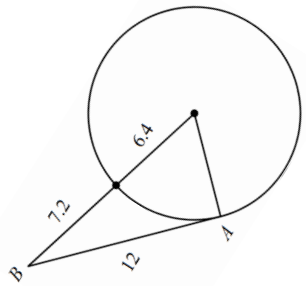
Write your questions here!

So what does this all mean?

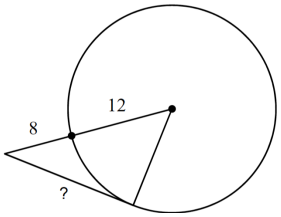
Examples of Tangent Theorem #1 using the Pythagorean Theorem:

Determine if line AB is tangent to the circle.



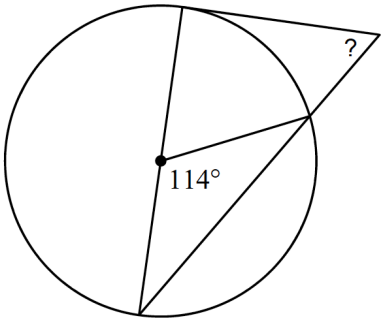


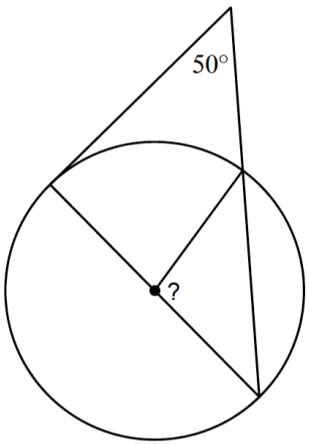
Find the missing segment lengths:



Examples of Tangent Theorem #1 using the Isosceles Triangles:

Find the missing angle measure.

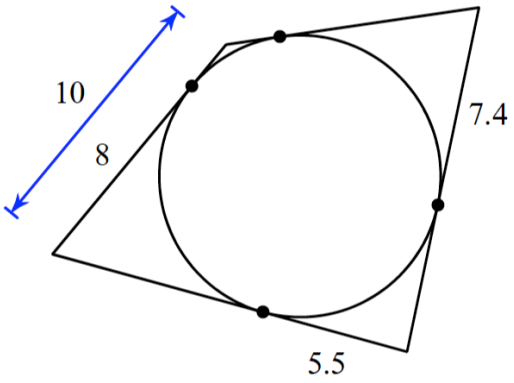




Write your questions here!

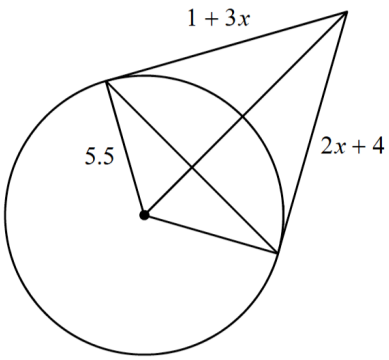
Example of Tangent Theorem #2

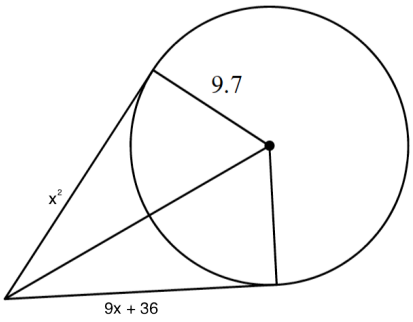
Find the perimeter of the polygon.



Examples of Tangent Theorem #2 using Algebra.

Solve for x.





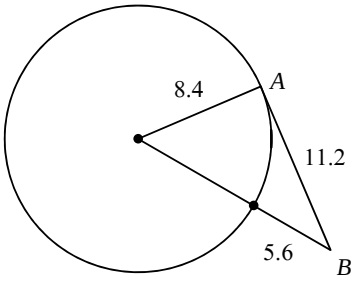
Now, summarize your notes here!

Geometry

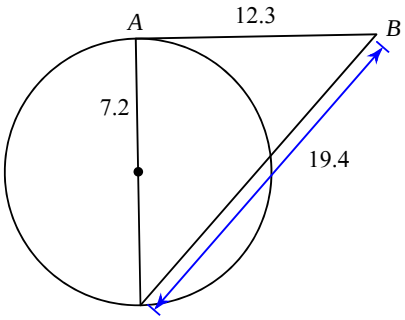
Practice 11.1

Determine if line AB is tangent to the circle.

1)

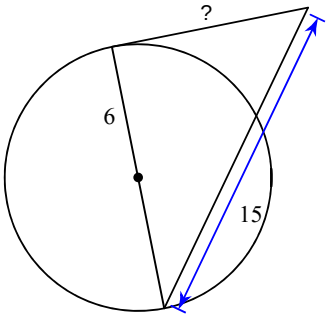


2)

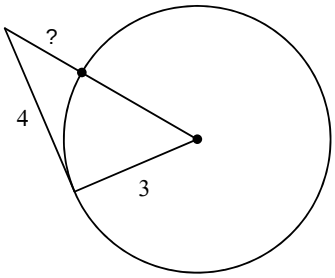


Find the segment length indicated. Assume that lines which appear to be tangent are tangent.

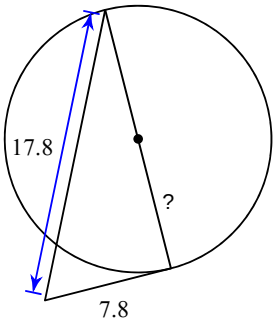
3)



4)



5)



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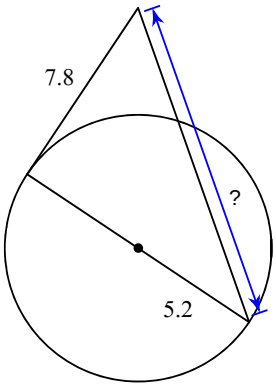
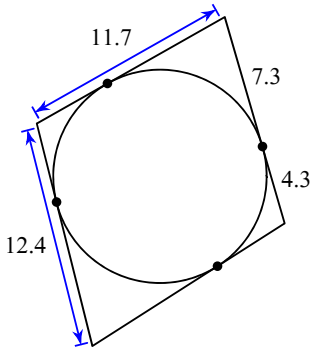
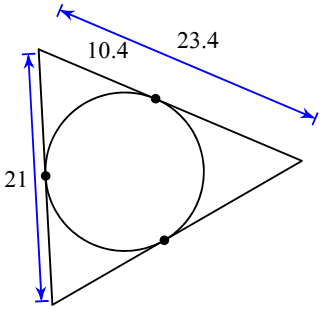


Find the perimeter of each polygon. Assume that lines which appear to be tangent are tangent.

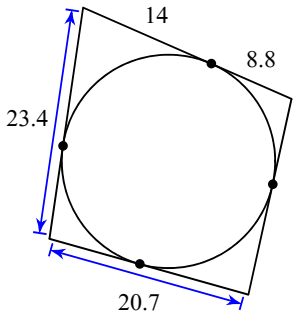
7)



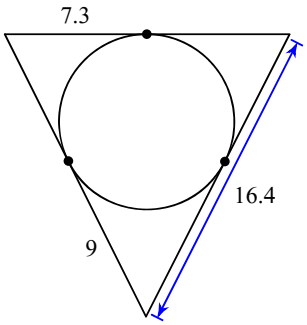
8)



9)

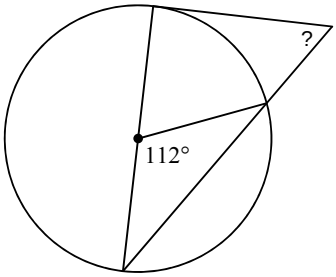


10)

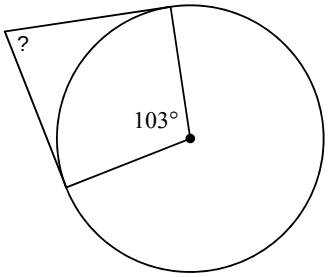


Find the angle measure indicated. Assume that lines which appear to be tangent are tangent.

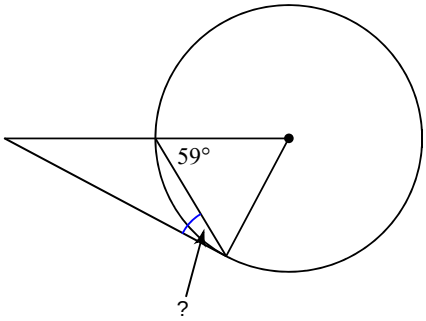
11)



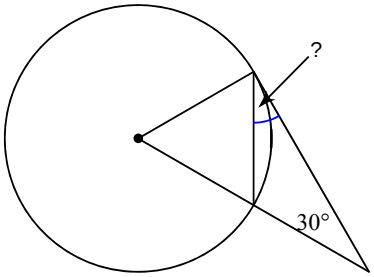
12)



13)

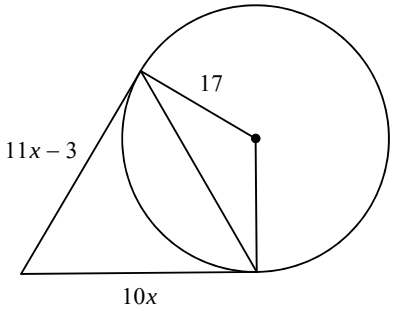


14)

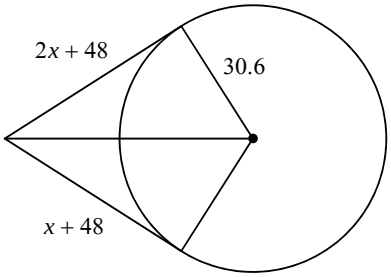


Solve for *x*. Assume that lines which appear to be tangent are tangent.

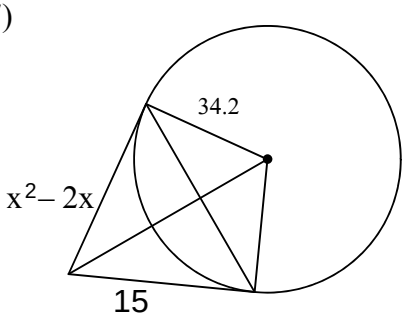
15)



16)

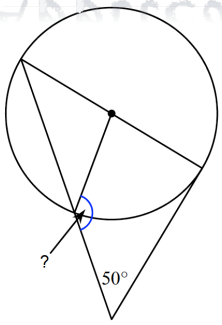


17)

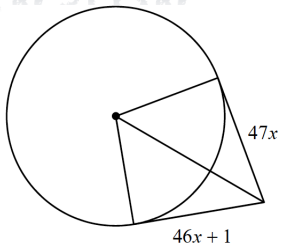


11.1 Application and Extension

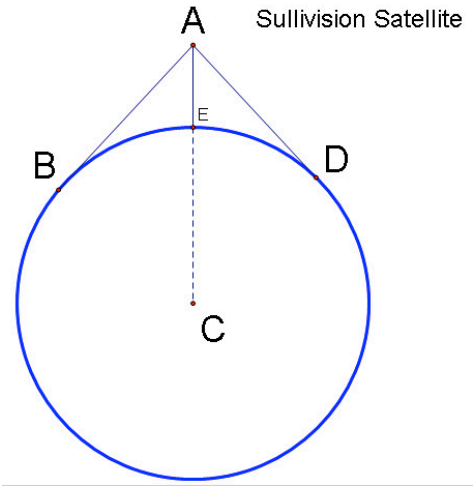
1. Find the missing ***angle***:



2. Solve for x:



Sullivision Satellite



STC (Sullivision Television Company), who specializes in do-it-yourself Coreygami and Baton twirling programs, has just hired you. Your first task is to find out how many satellites the company will need. You know that Earth's diameter is approximately 8000 miles and the satellite will move in an orbit about 600 miles above the surface. The satellite will hover directly above a fixed point on the Earth. Draw $\overline{CB}$ and $\overline{CD}$.

3. Find the measure of $\overline{AC}$: _____

4. Find the measure of $\overline{AB}$: _____.

5. Find $m\measuredangle BCA$ and $m\measuredangle DCA$: _____.

6. Find $m\measuredangle BCD$ _____.

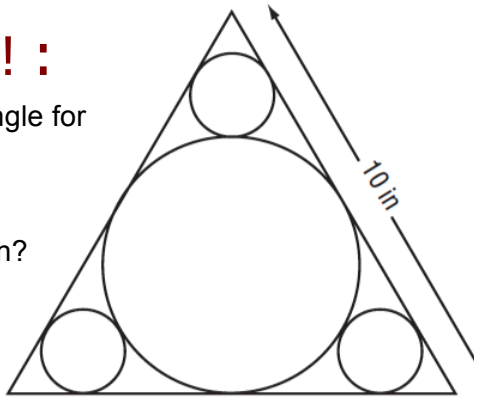
7. Find the arc length of arc $\widehat{BD}$. _____.

8. How many satellites would you recommend Sullivision use so that the entire circumference of the Earth is covered? Show how you got your answer.

9. Jasmine is riding in an airplane at an altitude of about 6.5 mi above the Earth. How far on the Earth can she see? Round to the nearest mile. (Hint: Draw a similar picture to that above!)

Optional Challenge PROBLEM!!!:

10. Mr. Brust wants to make this design of circles inside an equilateral triangle for his special club the "Nerd Herd":



a. What is the radius of the large circle to the nearest hundredth of an inch?

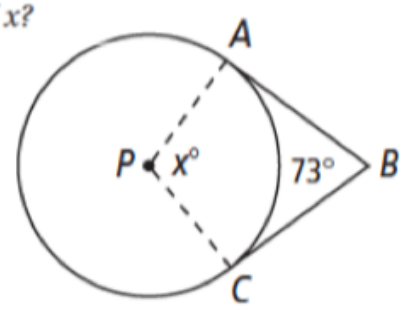
b. What are the radii of the smaller circles to the nearest hundredth of an inch?

[PACKET 11.1: TANGENT LINES]

Multiple Choice:

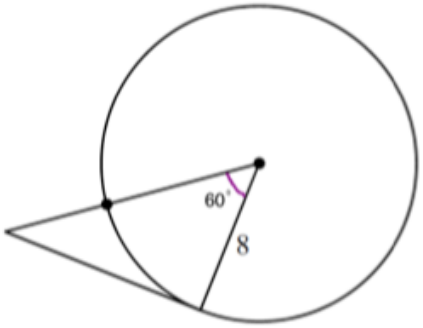
$\overline{AB}$ and $\overline{BC}$ are tangents to $\odot P$.
What is the value of x?

(A) 73 (C) 117
(B) 107 (D) 146



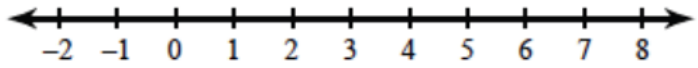
Gridded Response:

Find the area of the triangle to the nearest tenth.



Solve each equation for x!

1. $x + 14 \leq 3(4 - x)$



2. $20 + 2k = -2(1 - 4k) - 2$

Factor Completely (Double factor)

3. $6x^2 + 15x + 9$

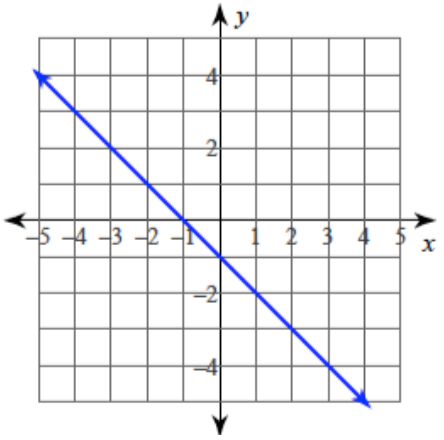
Factor!

4. $9g^2 - 1$

5. Solve the linear system by substitution:

$y = 2x - 2$
$-5x + 2y = -1$

6. Find the equation of the line:



m = _____

b = _____

Equation: _____

Algebra Review