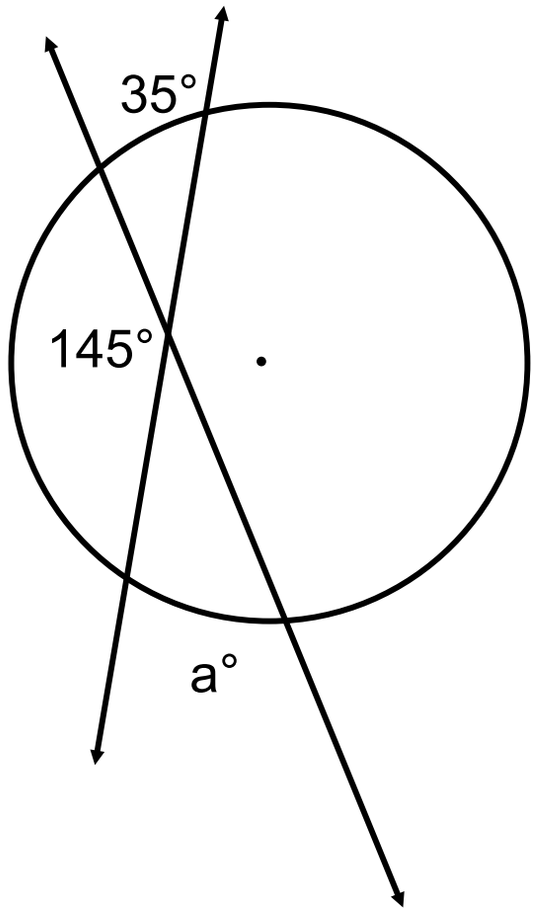
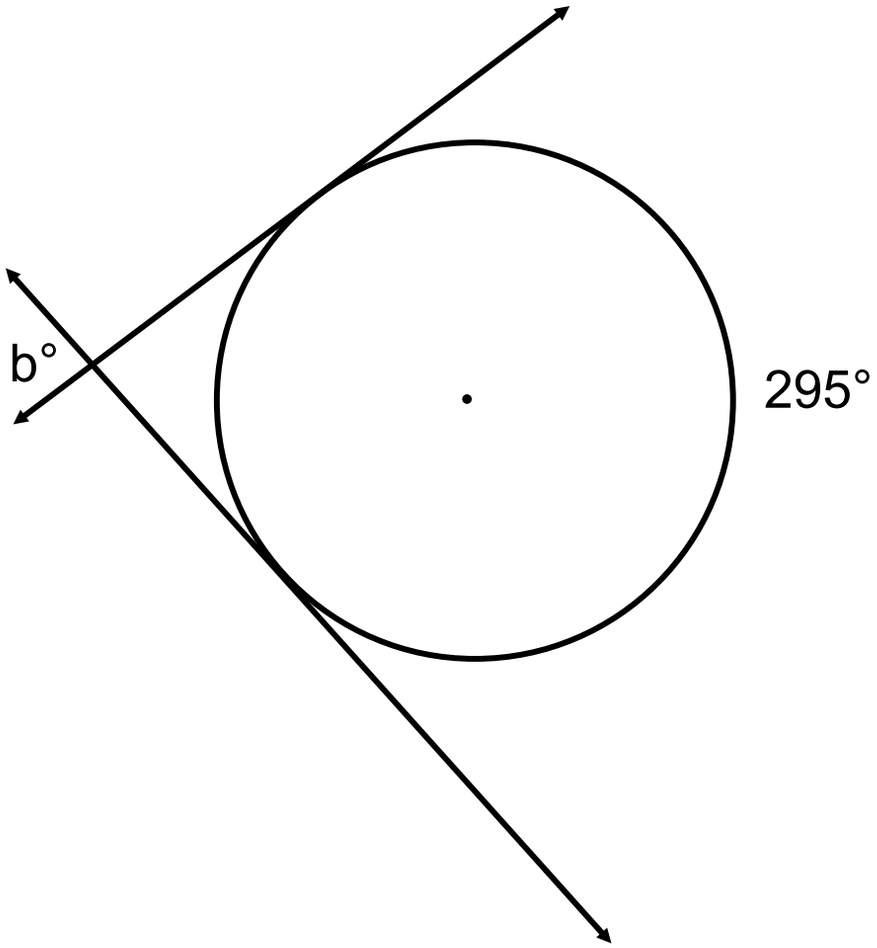
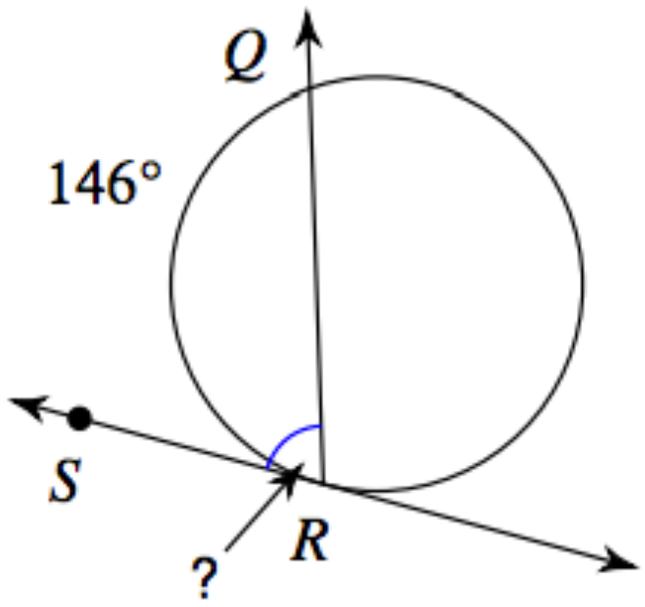
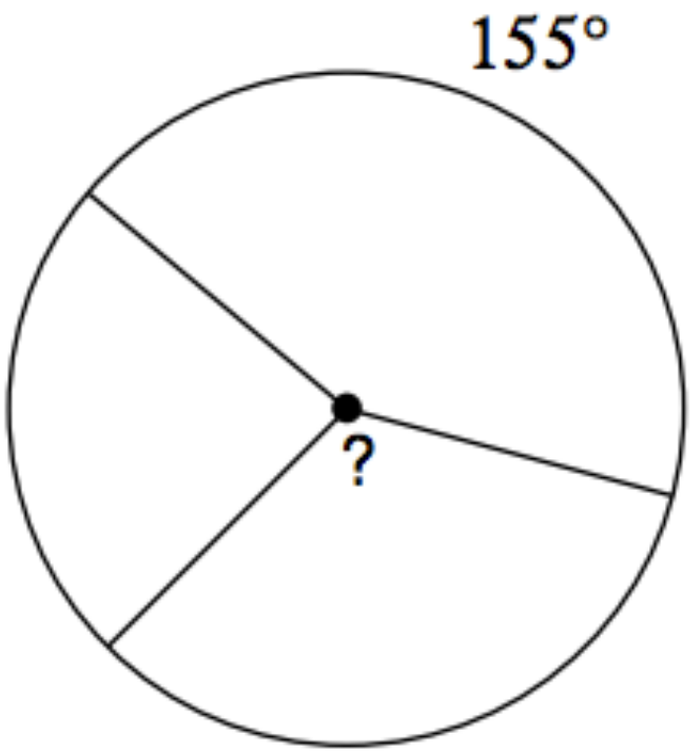
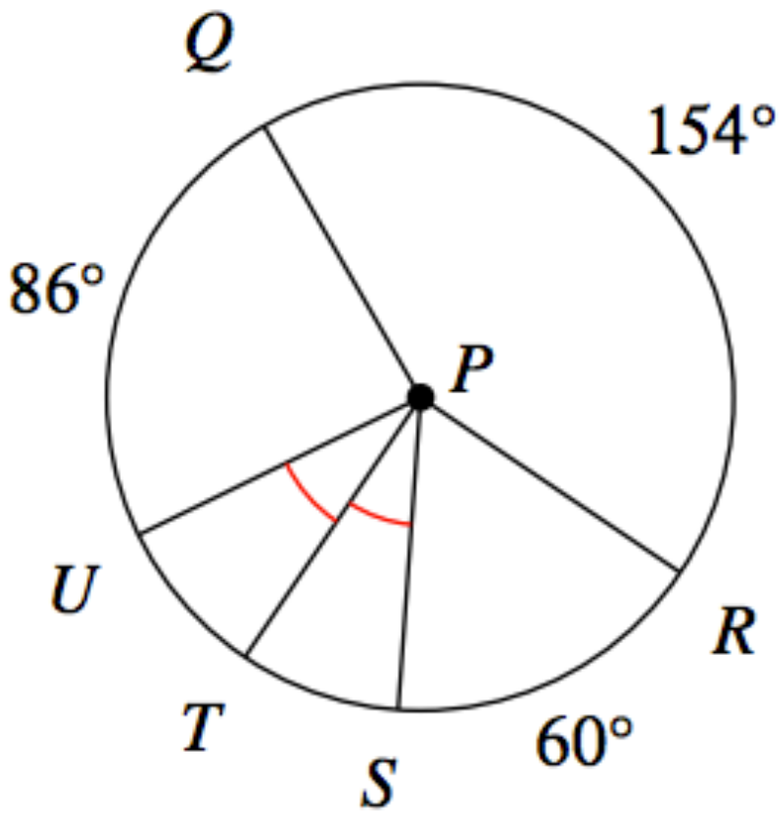

35°
145°
a°


b°
295°


Q
146°
S
R
?



120°

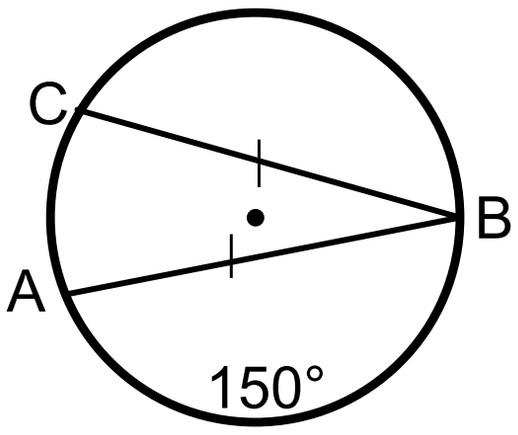


Find the measures of:

∠QPR =

∠UPS =

∠QPT =



Find:

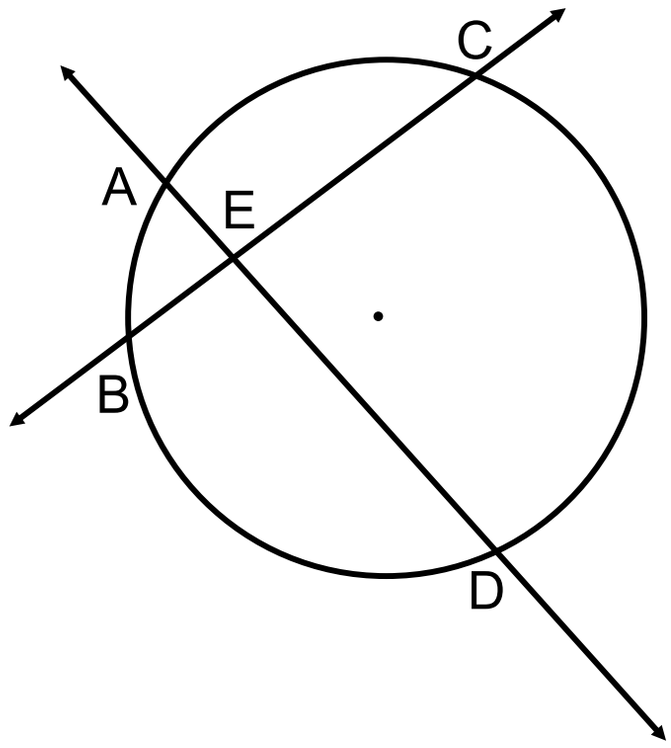
$m\overset{\frown}{CB}$ =

$m\overset{\frown}{AC}$ =

Activity:

You and 2 partners will be finding the measurements of segments in circles.

You will be measuring and recording the lengths of *AE, BE, CE,* and *DE*. After you will find the products of *AE* x *ED* and *BE* x *CE.*



1. Fill out the chart.

Make sure your units are consistent

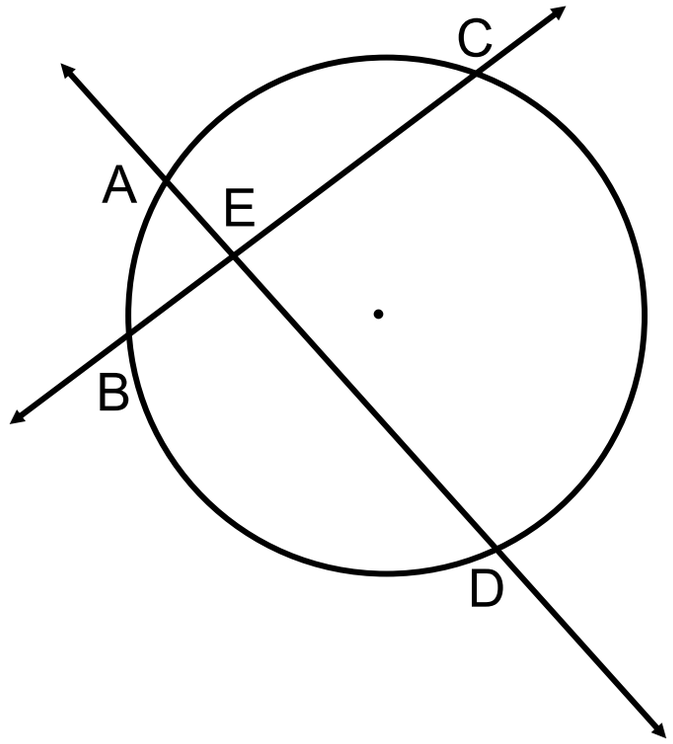
	Hoop 1	Hoop 2	Hoop 3	Hoop 4	Hoop 5
Measure of *AE*					
Measure of *CE*					
Measure of *BE*					
Measure of *DE*					
Product of *AE* and *DE*					
Product of *BE* and *CE*					

2. Make a conjecture about the relationship between the 4 chord segments (*AE, BE, CE,* and *DE*).

3. Let $\overline{PQ}$ and $\overline{RS}$ be two chords of a circle that intersect at point *T.* if *PT* = 9, *QT* = 5 and *RT* = 15, using your conjecture from number 2, find *ST*

Segments of a chord theorem:

If two chords intersect inside a circle, then the product of the lengths of the segments of one chord is equal to the product of the lengths of the segments of the other.

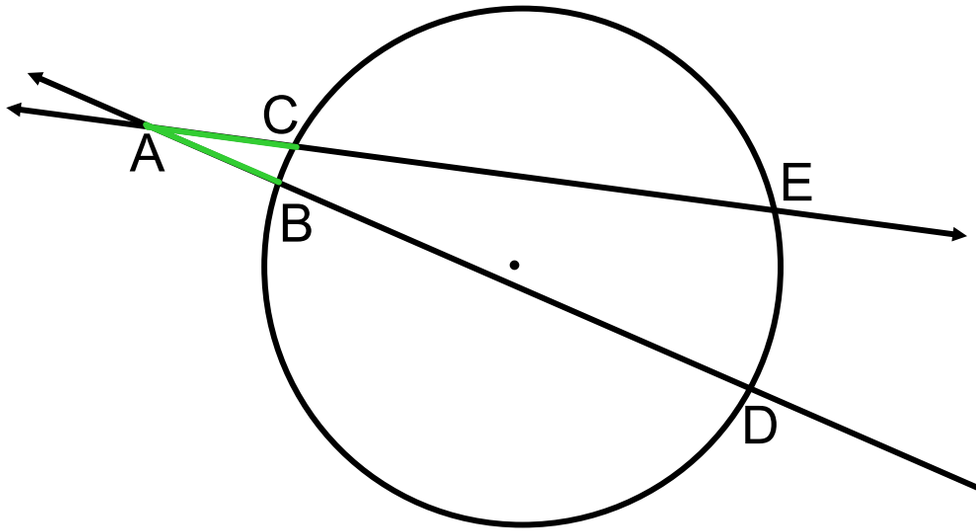


$$AE \cdot ED = BE \cdot EC$$

$$\frac{AE}{BE} = \frac{EC}{ED}$$

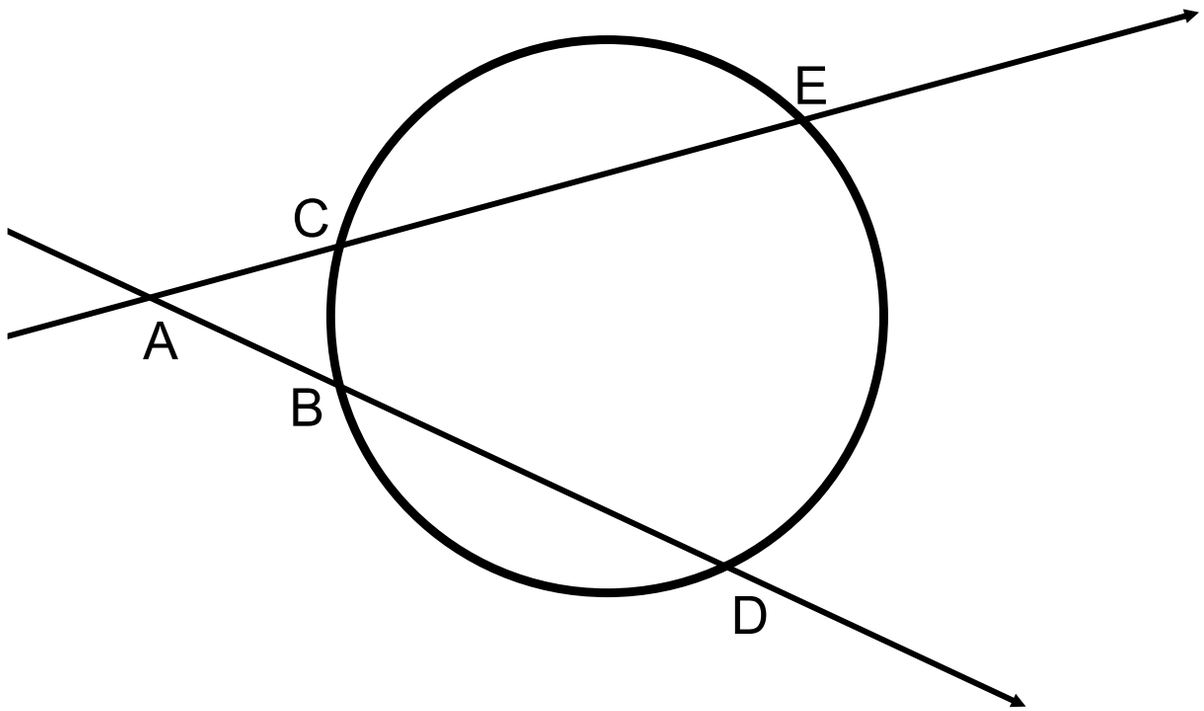
Segments of secants theorem:

If two secants share the same end point outside of the circle, then the product of the lengths of one secant segment and its external segment equals the product of the length of the other secant segment and it's external segment.



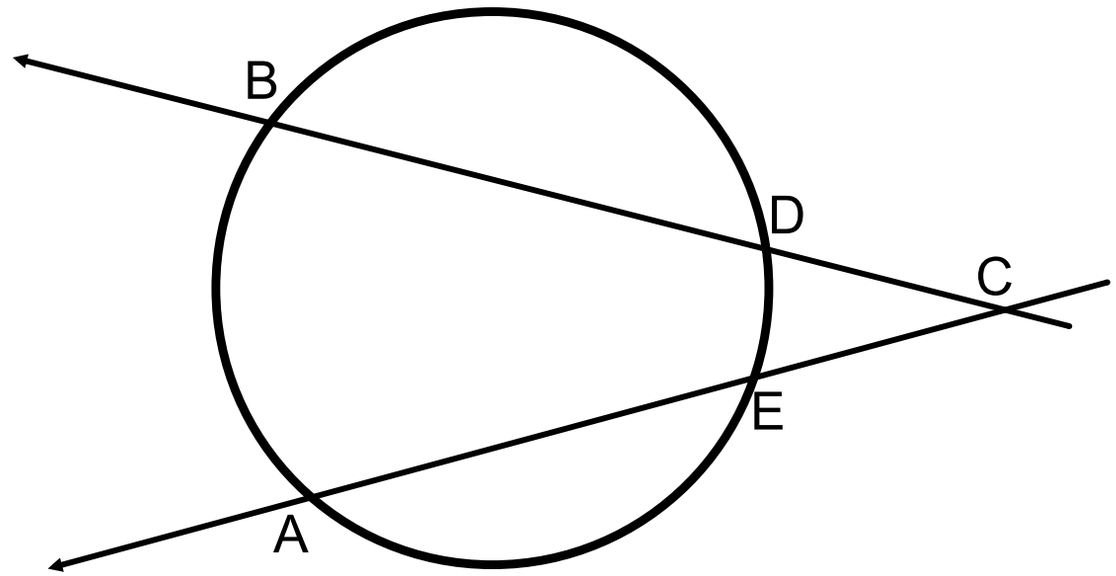
$$AC \cdot AE = AB \cdot AD$$

AB = *6*, *BD* = 9 *AC*= *5* find *CE*.



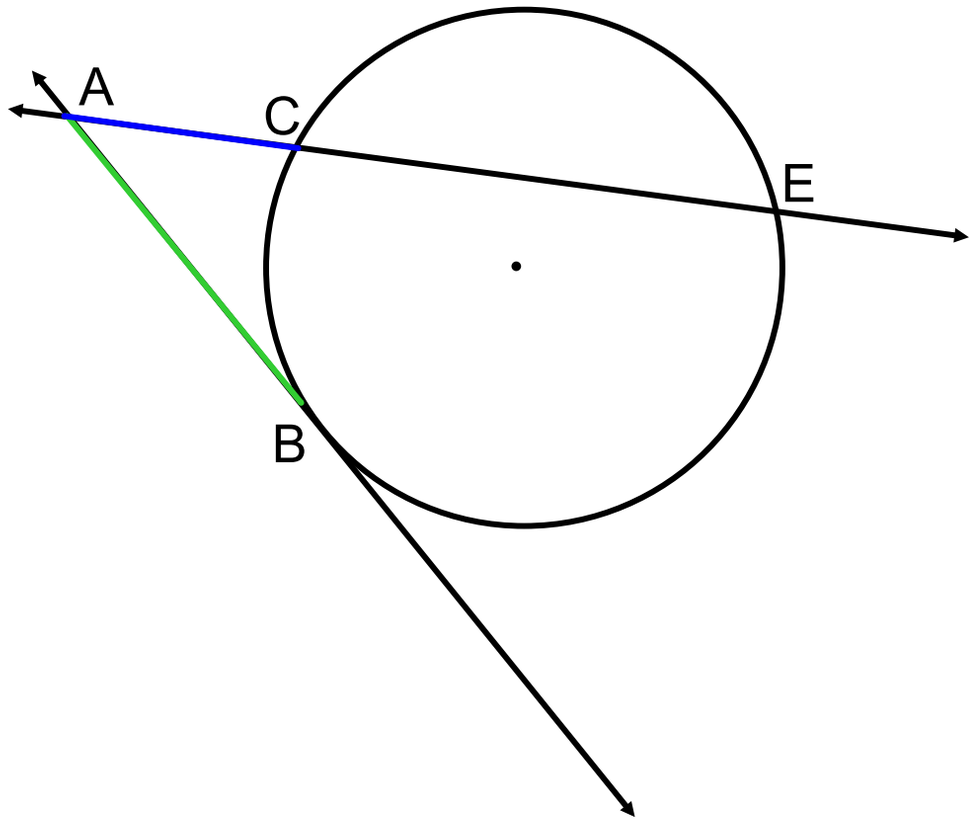
BD = 22, DC = 18 AE= 29, EC = x.

Find x



Segments of tangents and secants theorem:

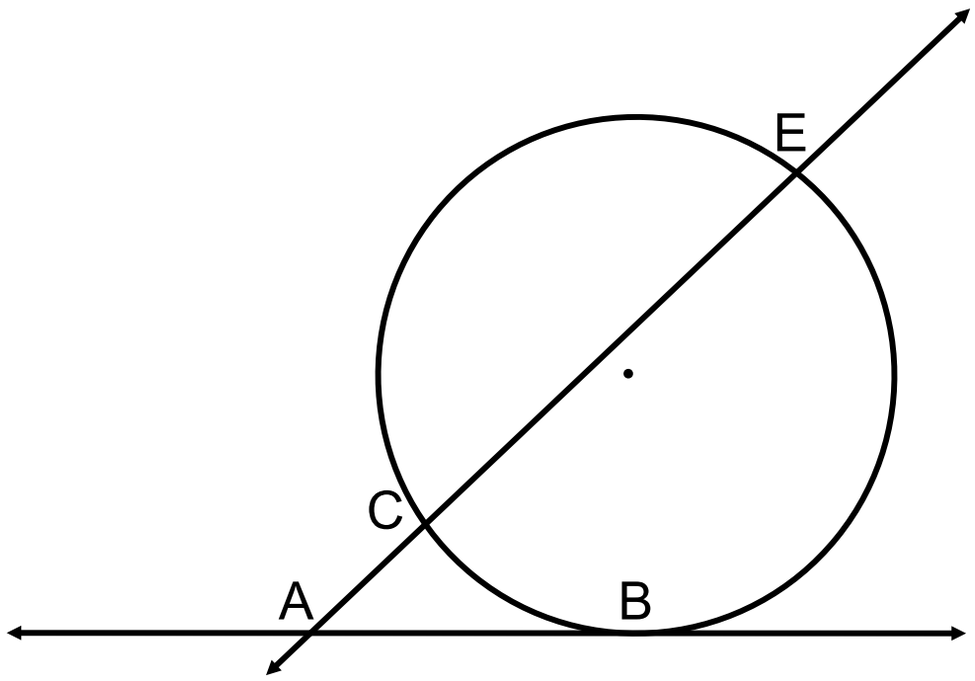
If a secant and a tangent share the same end point outside of the circle, then the product of the length of the secant segment and its external segment equals the length of the tangent squared.



$$AC \cdot AE = AB^2$$

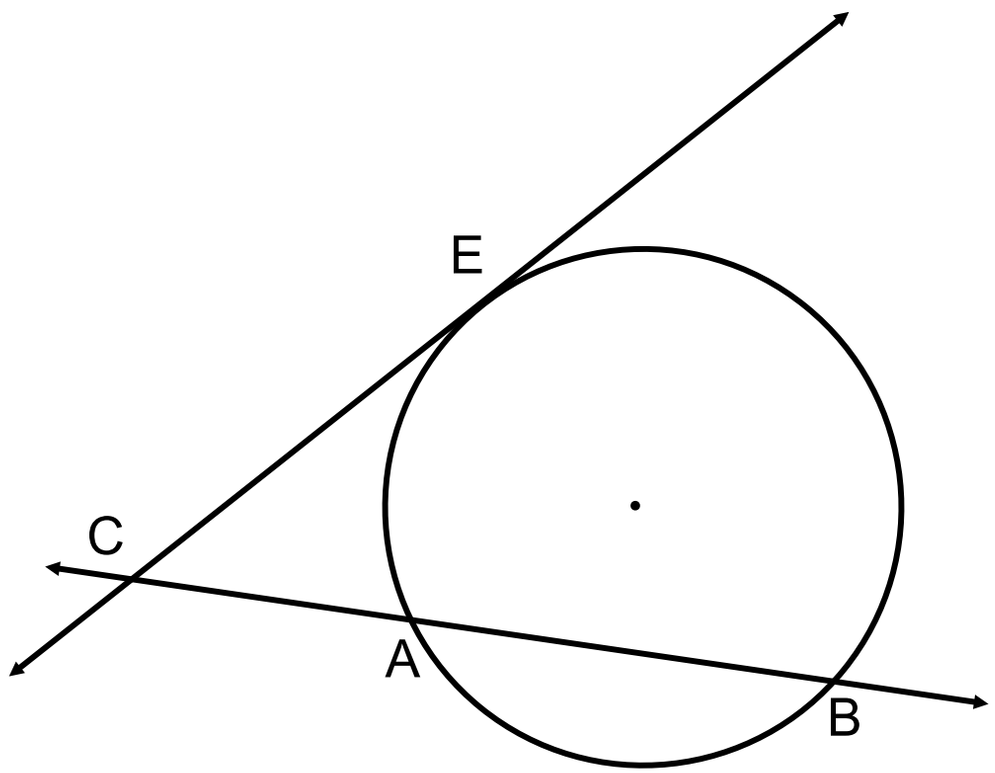
AC =1, CE = 3, AB = x

Find x.



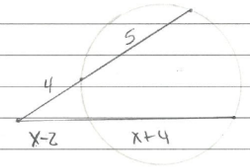
CE = 15, CA = x, AB = 14

Find x.



5, 7, 11, and 22

(8)



① $4(4+5) = x-2(x-2+x+4)$

② $36 = x-2(2x+2)$

$36 = 2x^2 - 4x + 2x - 4$

$36 = 2(x^2 - x - 2)$

$18 = x^2 - x - 2$

$0 = x^2 - x - 20$

$0 = (x-5)(x+4)$

$x = 5, -4$

③ $x = 5$

① Because we have 2 secant line that have a common end point, we can set the product of the line and it's exterior segment equal to eachother.

② now we solve for x.

③ Because x is a length, we will only take the positive solution.