Geometry 10.7

Find measures of segments that intersect in the interior of a circle

Find measures of segments that intersect in the exterior of a circle

chord

chord segment

secant

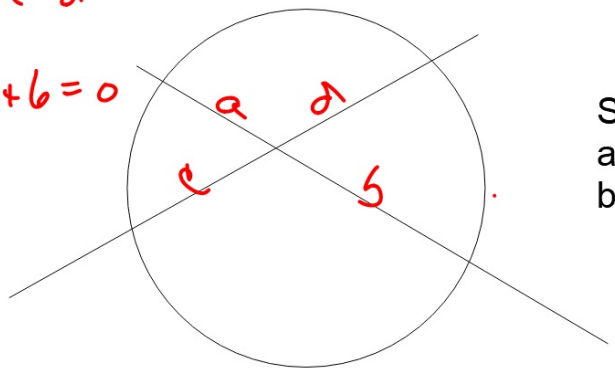
secant segment

(external or internal)

tangent segment

$ab = cd$

$x^2+5x+6=0$



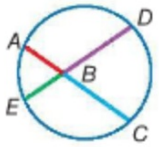
Same picture as 10.6.... but...

Quiz 10.5-10.6

Theorem 10.15 Segments of Chords Theorem

Words If two chords intersect in a circle, then the products of the lengths of the chord segments are equal.

Example $AB \cdot BC = DB \cdot BE$

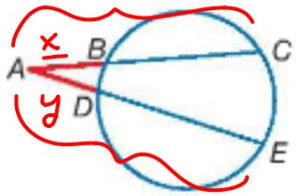


You will prove Theorem 10.15 in Exercise 23.

Based on similar triangles

Theorem 10.16 Secant Segments Theorem

Words If two secants intersect in the exterior of a circle, then the product of the measures of one secant segment and its external secant segment is equal to the product of the measures of the other secant and its external secant segment.



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

You will prove Theorem 10.16 in Exercise 24.

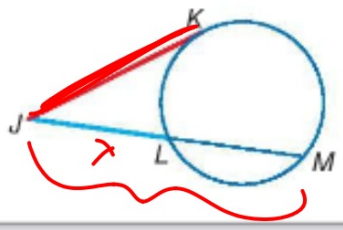
external segment x whole thing

The whole tangent is external...

Theorem 10.17

Words If a tangent and a secant intersect in the exterior of a circle, then the square of the measure of the tangent is equal to the product of the measures of the secant and its external secant segment.

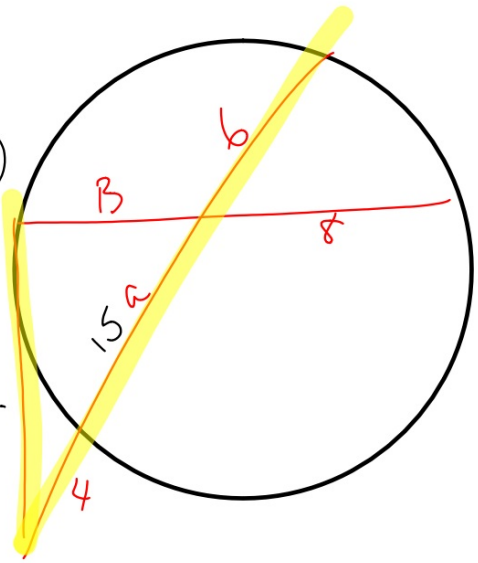
Example $JK^2 = JL \cdot JM$



You will prove Theorem 10.17 in Exercise 25.

Might need more than one procedure to solve completely.

p.754
19)



$10 \cdot 10 = 4(a+4)$

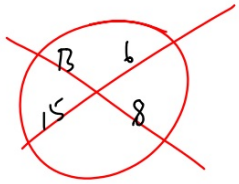
$100 = 4(a+10)$

$100 = 4a + 40$

$-40 \quad -40$

$60 = 4a$

$15 = a$

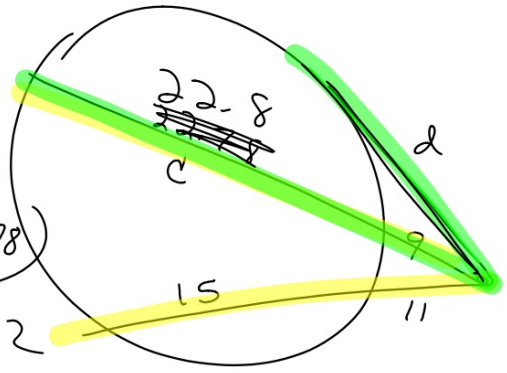


$15 \cdot 6 = B \cdot 8$

$90 = 8B$

$B = 11.25$

(21)



$d \cdot d = 9(31.78)$

$d^2 = 286.02$

$d = \pm 16.91$

$d = 16.9$

$9(9+c) = 11(26)$

$81 + 9c = 286$

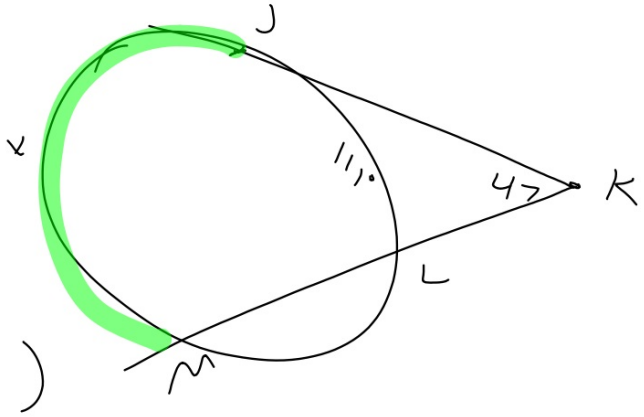
$-81 \qquad -81$

$9c = 205$

$c = 22.78$

10.6 p.746

20.



$47 = \frac{1}{2}(x - 111)$

$47 = \frac{1}{2}x - 55.5$

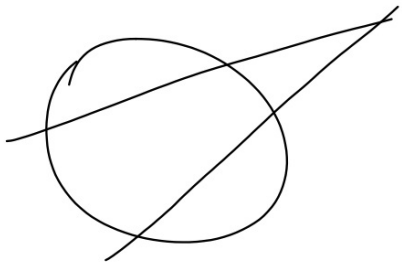
$+55.5 \quad +55.5$

$102.5 = \frac{1}{2}x$

$205 = x$

WB 10.6

5.

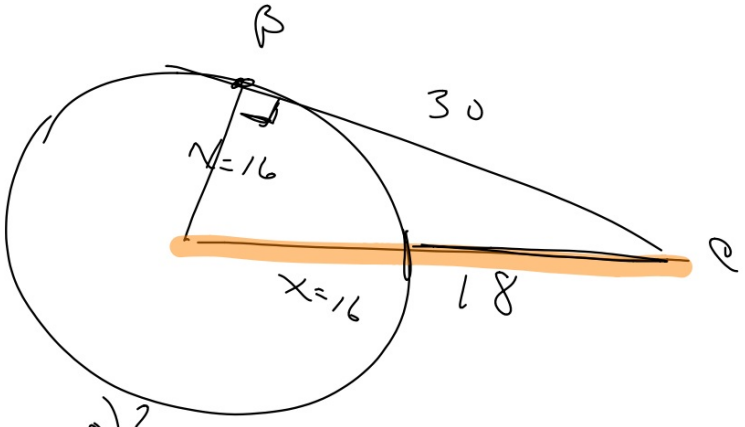


10.5 P. 736

(5)

$x+18$

$x+18$



$x^2 + 30^2 = (x+18)^2$

$x^2 + 900 = x^2 + 36x + 324$

$x^2 - 324 \quad -x^2 \quad -324$

$576 = 36x \qquad x = 16$

WB pr.
10.6 + 10.7